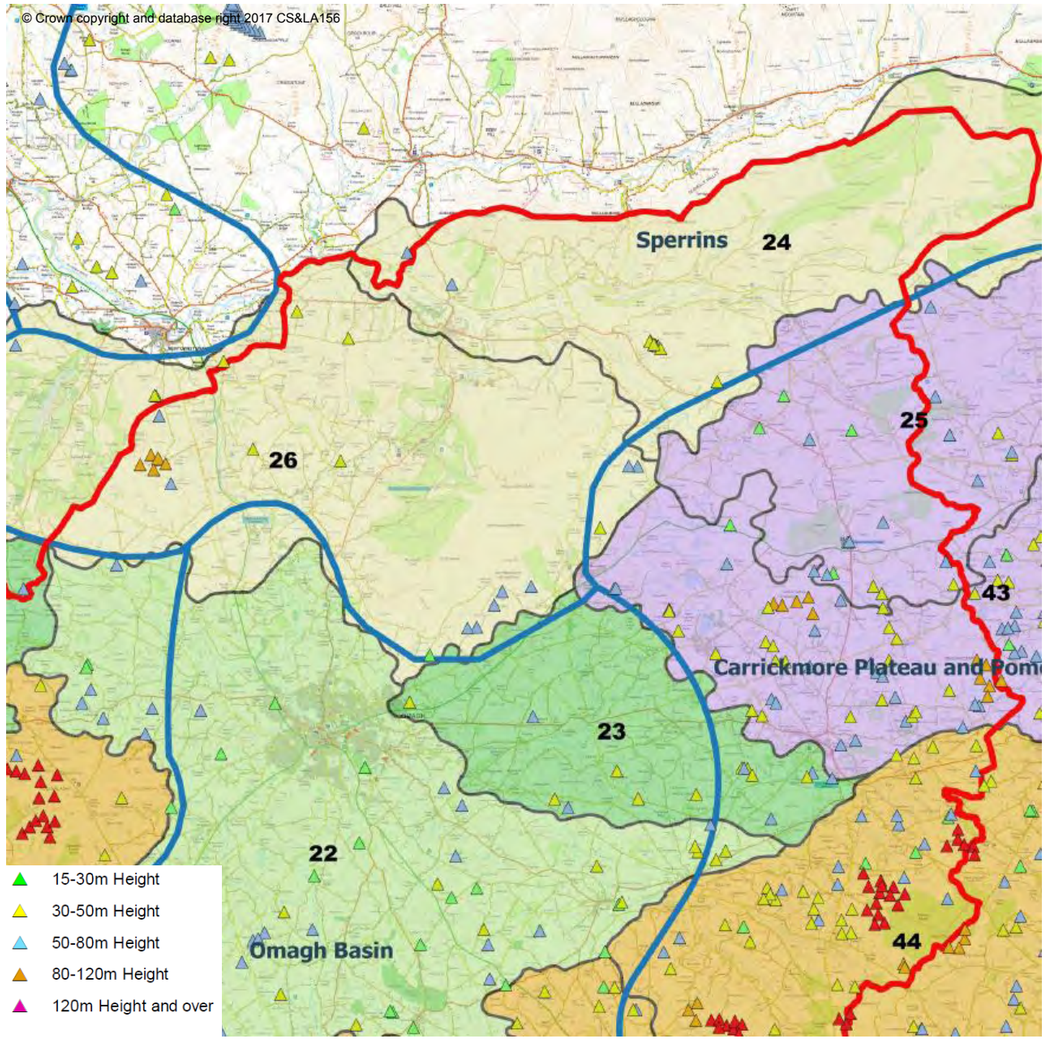
6. SPERRINS



LCAs 24. South Sperrin, 26. Bessy Bell and Gortin

The Sperrins form a mountainous boundary between Fermanagh and Omagh and neighbouring Derry and Strabane to the north. The NILCA 2000 identifies two landscape character areas which fall within this larger area of regional character, but they have similarities of character and are considered in this assessment to be of broadly the same landscape type, both containing mountainous uplands and more settled lowland landscapes. The Sperrins range extends north well beyond the Local Authority area, with its highest and most remote summits to the north of the Glenelly Valley in Derry and Strabane. The scenic qualities of the region are recognised as nationally important through designation as an Area of Outstanding Natural Beauty (AONB).

SPERRIN UPLAND HILLS LCT

LCA 24. South Sperrin; LCA 26. Bessy Bell and Gortin

South Sperrin (LCA 24) lies to the very north of the Local Authority area centred on the valley of the Owenkillew River and its tributaries. The landscape is of a large scale, defined by ridges and elongated hills along the east to west valley alignment, with the highest summits rising to approximately 500m AOD at more elevated locations to the east. Western parts of the character area in the lower reaches of the valley are more populated, including the small town of Gortin, where the valley of the Owenkillew River broadens. Upper parts to the west include extensive areas of forestry. Much of the landscape has a sense of remoteness and wildness of character, however the relatively large scale simple landforms with coniferous plantations are not of the highest scenic value, with the more dramatic landscapes north of the Glenelly Valley in Derry and Strabane. As noted above, the area is entirely designated as AONB, with the Ulster Way and local cycle routes passing through. There are various viewpoints from which the landscape can be appreciated including a scenic drive through the Sperrins. The area is therefore important as a recreational resource based on its landscape qualities. The Owenkillew River is designated as a SAC.

Bessy Bell and Gortin (LCA 26) lies to the south of *South Sperrin,* forming the gateway to the wider Sperrins range. Here the landscape takes the form of a basin for the Strule River flowing northward from Omagh towards Newtownstewart, joining with the westward flowing Owenkillew. The basin is bounded to the east by the mass of Mullaghcarn, which includes the coniferous woodland of Gortin Glen Forest Park on its western flanks, and the rounded landmark hill of Bessy Bell to the west. The Strule meanders northwards from Omagh through pastures which appear of good quality, becoming more direct as it is channelled between Bessy Bell and the hills of Deer's Leap and Mary Gray which form the Sperrins foothills. The Cappagh Burn flows from Gortin Glen south westwards around Curraghchosaly Mountain into the Strule, with the narrow and steep sided glen continuing northwards towards the settlement of Gortin. Most of the landscape lies within the AONB designation, with the exception of Bessy Bell hill. The landscape is scenic and important as a recreational resource, and the hill at Bessy Bell is identified as an ASQ.

The simple upland character of the north-eastern parts of LCA24 South Sperrin

View across the lowlands of LCA26 Bessy Bell and Gortin, with Bessy Bell 2 windfarm to the left of the photograph

Table 6.1(vi). Summary of Landscape Capacity and Cumulative Effects and Guidance for Future Wind Energy Development: Sperrins

6. SPERRINS

Key: ◯ **No Capacity** ◯ **Low Capacity** ◯ **Medium Capacity** ◯ **High Capacity** Turbine Size: Small 15<30m; Small/ Medium 30<50m; Medium 50<80m; Medium/ Large 80<120m; Large 120<150m; Very Large 150~200m

UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)										**CURRENT CONSENTED DEVELOPMENT**		**PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)**							
Landscape Sensitivity to Wind Energy Development				**Landscape Capacity** (Related to turbine size)						**Existing/ Consented Developments (November 2017)**	**Current Wind Energy Landscape Type(s)**	**Future Wind Energy Landscape Type(s)**	**Remaining Landscape Capacity** (Related to turbine size)						**Comments on Sensitivity and Capacity**
Landscape Character Sensitivity	Visual Sensitivity	**Landscape Sensitivity**	**Landscape Value**	**15-<30m**	**30-<50m**	**50-<80m**	**80-<120m**	**120-<150m**	**150 ~ 200m**				**15-<30m**	**30-<50m**	**50-<80m**	**80-<120m**	**Over 120m**	**150 ~ 200m**	
SPERRIN UPLAND HILLS																			
Landscape Character Area: ***24. South Sperrin***																			
Med	Med/ High	**Med**	**High**	◯	◯	◯	◯	◯	◯	The area includes 10 consented wind turbines, all of small/ medium or medium size, up to 73m AOD. (Note 7 of these are close together at Mullydoo, and most likely represent revisions to the single turbine on site)	*Landscape with Occasional Wind Turbines/ No Wind Turbines (LOWT/ LNWT)*	*LOWT/ LNWT*	◯	◯	◯	◯	◯	◯	**Landscape Analysis:** Large scale in upland areas, but more intimate and enclosed in the valleys. Simple upland landform and landcover in the uplands of forestry and moorland. AONB indicates a high value landscape.
												Max. Numbers in Group	*1-2*	*1-2*	*1*				**Development Capacity:** The character of parts of the upland landscape would support larger scale wind energy developments, however the high landscape value significantly constrains development potential. Lowland landscapes are also small scale, enclosed and sensitive. Limited smaller scale wind energy developments within broader river valley areas only.
												Min Group Separation Distances (km)	*2-3*	*3-5*	*5*				
Landscape Character Area: ***26. Bessy Bell and Gortin***																			
Med	Med/ High	**Med/ High**	**High**	◯	◯	◯	◯	◯	◯	21 consented turbines including 6 x 100m turbines at Bessy Bell 2 windfarm, there are a small number of turbines of smaller sizes, including a series of 'medium' sized turbines NE of Omagh.	*Landscape with Occasional Wind Turbines (LOWT)*	*LOWT*	◯	◯	◯	◯	◯	◯	**Landscape Analysis:** Some larger scale upland landscape areas, however lowland landscapes are small scale, enclosed and sensitive. AONB designation indicates a high value landscape.
												Max. Numbers in Group	*1-3*	*1-3*	*1-2*				**Development Capacity:** Limited capacity for small scale development associated with farms and properties, larger turbines sited against higher landforms at basin edge.
												Min Group Separation Distances (km)	*2-3*	*3-5*	*4-7*				

SUMMARY OF LANDSCAPE CAPACITY: SPERRINS

While this landscape is large scale and in places of a relatively simple landform which could accommodate wind energy development, the AONB designation recognises the wider Sperrins range as one of the most scenic of Northern Ireland's landscapes, and the landscape is also an important recreational resource. While the quality of the landscape varies, and not all is highly scenic, this does not necessarily provide a justification for large scale wind energy development, as such a development may risk compromising the integrity of the AONB as a whole.

SANDSTONE RIDGES AND PLATEAU LCT

LCAs 24. South Sperrin; 26. Bessy Bell and Gortin

Underlying Landscape Capacity

North eastern parts of the *South Sperrin* LCA contain remote upland areas of forestry partly contained by ridges, and in an area of low visibility from surrounding lowland landscapes. However, this area is also likely to be easily visible from the more upland landscapes north of the Glenelly Valley. While characteristics of this landscape suggest suitability for a large-scale windfarm development, the high value of the landscape resulting from the AONB designation renders this landscape highly sensitive to this scale of development. Many of the other upland areas are visible from either within the AONB or from lowland areas to the south (e.g. Mullaghcarn) retaining these landscapes as wild and remote uplands should be a key landscape objective to ensure the integrity of the AONB designation.

Therefore, for both LCAs, capacity exists only in the more lowland valley locations. Within *Bessy Bell and Gortin* there is limited potential for up to 'medium' sized turbines (<80m) and single developments or small groups, however the basin-like form of the landscape means that wind turbines would appear prominently in central locations, particularly when viewed from scenic viewpoints in Gortin Glen Forest Park.

The enclosed character of *South Sperrins* valleys means that even 'medium' sized turbines can appear very prominent, and there is capacity only for 'small' or 'small/ medium' sized turbines (<50m) in the more populated valleys to the west, with 'medium' (50<80m) turbines only suited to some of the larger scaled lowland areas to the east, in locations where they can be visually contained by surrounding landforms.

Consented wind Energy Development and Wind Energy Applications

There are very few wind energy developments within either LCA, the largest being within *Bessy Bell and Gortin Glen.* Bessy Bell 2 windfarm appears prominently on the south-eastern slopes of Bessy Bell, close to Bessy Bell 1 in the neighbouring Local Authority area. Bessy Bell 2 wind farm comprises 6 x 100m turbines. There is also a loose grouping of wind turbines on the lower south-eastern flanks of Mullaghcarn to the south east of the LCA. Elsewhere there are a small number of 'small/ medium' and 'medium' (<80m) sized wind turbines. The landscape of both areas appears largely as a *landscape with no/ occasional wind turbines*.

The only known wind energy application is for Doraville Wind Farm, a major 33 turbine development of 136m and 149m turbines in the north east of the *South Sperrin LCA*.

Residual Capacity and Guidance for Future Development

Wind Turbines

Due to its high value, the landscape has very low capacity for wind energy development and the objective should be to maintain the area as a landscape largely free of or with no wind turbines. There may be very limited capacity for developments of 'medium' (50<80m) sized turbines. In general, these would be best sited adjacent to landforms which provide backclothing, or where siting can take advantage of variations in landform to provide topographic screening. Siting of larger turbines centrally within enclosed valley landscapes should be avoided, particularly when close to smaller scale landscape features, as this tends to accentuate the size of larger turbines. 'Small' and 'small/ medium' size turbines (<50m) are best associated with farms and other properties, but siting on prominent local landscape features should be avoided. Care should be taken to maintain separation distances so that wind turbines appear as very infrequent landscape features.

Wind turbines at Bessy Bell are very prominent from nearby lowland areas, and there is no capacity to significantly extend, or utilise larger typology machines in this location.

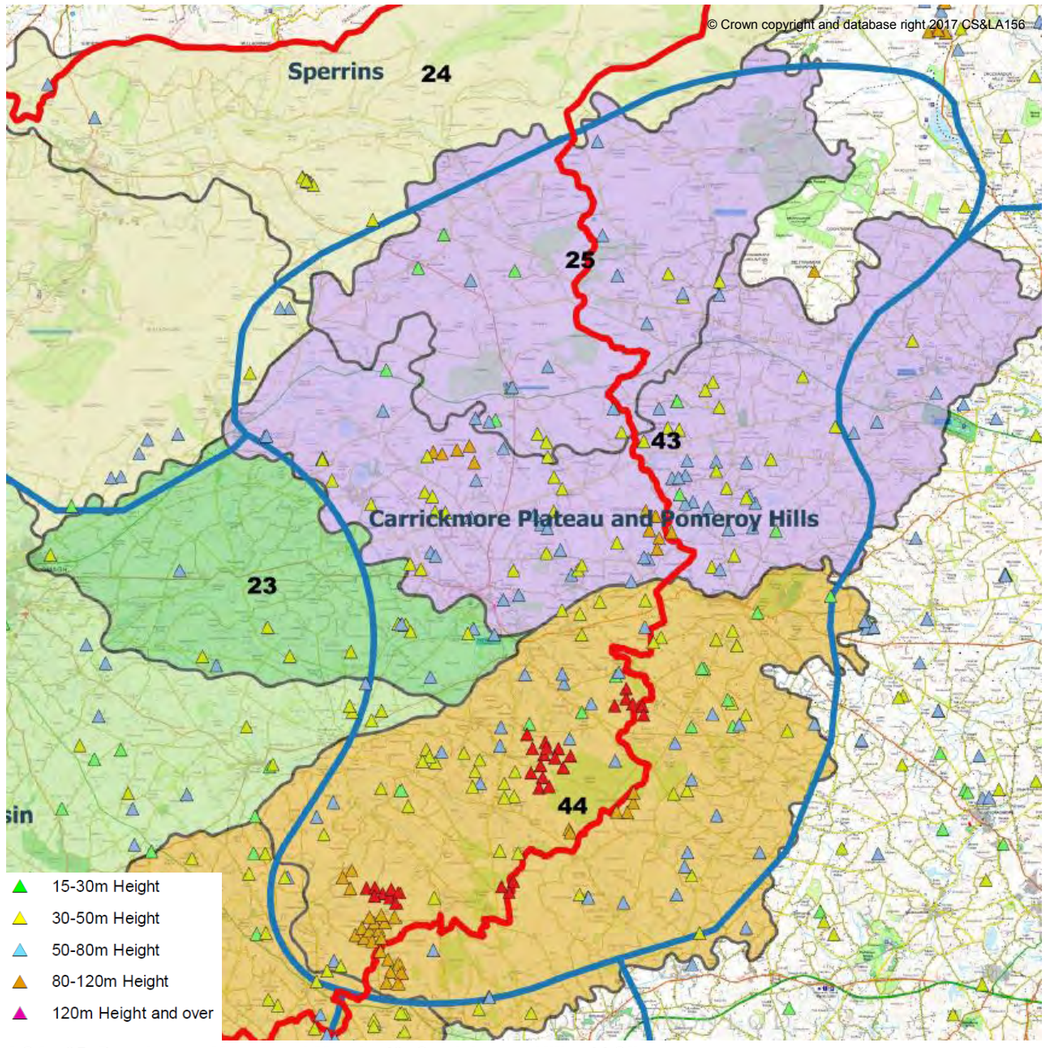
Proposals for other wind farm developments should be considered very carefully, not only in relation to their immediate landscape and visual effects, but also how such development affects the character, views to/ from, and integrity of the wider AONB.

Ancillary Elements

Ancillary wind farm elements also have the potential to be prominent in these landscapes and contribute to landscape and visual effects. In particular, power lines and pylons may be prominent in the more exposed upland landscapes, or potentially dominate enclosed valleys, and which should therefore be sited so as to respect sky lines, landform and the scale of terrain in which they are located. Ancillary features associated with smaller scale wind energy developments should be sited according to local conditions, and general guidance is provided in Section 6.7.

LCA 24 South Sperrin, near Gortin. Care should be taken when siting even 'medium' size (50<80m) in lowland landscapes to ensure they do not appear out of scale with lowland features

7. CARRICKMORE PLATEAU AND POMEROY HILLS



LCAs 25. Beaghmore Moors and Marsh, 43. Carrickmore Hills, 44 Slievemore

The *Carrickmore Plateau and Pomeroy Hills* form a broad undulating upland plateau extending south from the Sperrins. This landscape of mostly low lying small rounded hills separates the *Omagh Basin* to the west from that around Cookstown to the east, and links to the Brougher Mountain ridge which extends to the south west and defines the eastern extent of the Local Authority area. The area comprises 3 LCAs as defined in the NILCA 2000 but they share some characteristics, being defined by low rounded hills of semi-upland character, mostly not rising above 250m AOD, but reaching higher elevations towards the south. The northern part of this ReCA is within the Sperrins AONB.

LOWLAND HILLS LCT

LCA 25. Beaghmore Moors and Marsh; LCA 43. Carrickmore Hills

The ***Beaghmore Moors and Marsh (LCA 25)*** form the foothills of South Sperrin and lie to the north of this ReCA, and the great majority of this landscape in Fermanagh and Omagh lies within the AONB. Towards the north of the LCA the hills are relatively large, rounded and steep sided, but to the south they transition to a more undulating landscape. The landscape is a mixture of enclosed pastures of low quality, with peat bogs, some coniferous planting and various small watercourses winding through the landscape. The area is sparsely settled throughout, although the main A505 passes through the south of the area.

The igneous underlying geology of the ***Carrickmore Hills (LCA 43)*** manifests itself in a more varied and craggy landscape than found in areas towards the north and south. The landscape is a relatively open elevated plateau, much of which is marginal farmland, and with a rough character, including small loughs and bogs. The landscape is largely undeveloped, with small scale settlement throughout the landscape including the town of Carrickmore. There is some quarrying found in the area. The Murrins in the north west of the LCA are within the Sperrins AONB, and are designated as an ASSI because of its blanket bog.

View towards the Carrickmore Hills from the north.

SANDSTONE RIDGES AND PLATEAU LCT

LCA 44. Slievemore

The Camowen River provides the nominal separation between the *Carrickmore Hills* to the north and ***Slievemore (LCA 44)*** to the north, however the change in landscape character is subtle either

side of this division. Once again, this landscape is of undulating hills, although in this instance the landform is divided by a series of small but defined rivers - the Cloghfin, Altanagh and Camowen - traversing the landscape towards the lowlands to the west, between which are a series of low sandstone ridges. There are larger areas of plateau moorland and forestry at Altmore Forest and at Slievemore. Lower areas are of enclosed pastures which are of marginal viability. The area also has some sand and gravel quarrying and there is quite extensive wind energy development. The area is not within any landscape designation.

Table 6.1(vii). Summary of Landscape Capacity and Cumulative Effects and Guidance for Future Wind Energy Development: Carrickmore Plateau and Pomeroy Hills

7. CARRICKMORE PLATEAU AND POMEROY HILLS

Key: ◯ **No Capacity** ◯ **Low Capacity** ◯ **Medium Capacity** ◯ **High Capacity** Turbine Size: Small 15<30m; Small/ Medium 30<50m; Medium 50<80m; Medium/ Large 80<120m; Large 120<150m; Very Large 150~200m

UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)										**CURRENT CONSENTED DEVELOPMENT**		**PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)**							
Landscape Sensitivity to Wind Energy Development				**Landscape Capacity** (Related to turbine size)						**Existing/ Consented Developments (November 2017)**	**Current Wind Energy Landscape Type(s)**	**Future Wind Energy Landscape Type(s)**	**Remaining Landscape Capacity** (Related to turbine size)						**Comments on Sensitivity and Capacity**
Landscape Character Sensitivity	Visual Sensitivity	**Landscape Sensitivity**	**Landscape Value**	**15-<30m**	**30-<50m**	**50-<80m**	**80-<120m**	**120-<150m**	**150 ~ 200m**				**15-<30m**	**30-<50m**	**50-<80m**	**80-<120m**	**Over 120m**	**150 ~ 200m**	
LOWLAND HILLS																			
Landscape Character Area: ***25. Beaghmore Hills and Marsh***																			
Med	Med	**Med**	**Med/ High**	●	●	●	◯	◯	◯	7 consented wind turbines, all small or medium sized as single turbines. Tallest of which is 50m.	*Landscape with Occasional Wind Turbines (LOWT)*	*LOWT*	●	●	●	◯	◯	◯	**Landscape Analysis:** Landscape is almost entirely within the AONB and is therefore of high landscape value. Landscape has an upland character, comprising low rounded hills forming foothills to the wider Sperrins range. **Development Capacity:** The area can support a low level of wind energy development of the smaller typologies only.
												Max. Numbers in Group	*1-2*	*1-2*	*1*				
												Min Group Separation Distances (km)	*2-3*	*3-5*	*5*				
Landscape Character Area: ***43. Carrickmore Hills***																			
Med/ High	Med	**Med**	**Med**	●	●	●	●	◯	◯	49 consented wind turbines, of varies sizes, including windfarms at Crockdun (5 x 101m) and Creggan conroe (5 x 100m)	*Landscape with Wind Turbines/ Wind Turbine Landscape (LWT/WTL)*	*LWT*	●	●	●	◯	◯	◯	**Landscape Analysis:** Landscape is partly of an upland character, but the scale of the landscape is not large or particularly elevated and topography is quite complex. **Development Capacity:** Landscape has underlying capacity for smaller scale wind farm development/ small wind farms, however due to the numbers of consented turbines there is little residual capacity within the LCA.
												Max. Numbers in Group	*1-3*	*1-3*	*1-5*				
												Min Group Separation Distances (km)	*2-3*	*2-3*	*3-5*				

7. CARRICKMORE PLATEAU AND POMEROY HILLS

Key: ◯ **No Capacity** ◯ **Low Capacity** ◯ **Medium Capacity** ◯ **High Capacity** Turbine Size: Small 15<30m; Small/ Medium 30<50m; Medium 50<80m; Medium/ Large 80<120m; Large 120<150m; Very Large 150~200m

UNDERLYING LANDSCAPE CAPACITY (i.e. not taking account of current wind energy development)										**CURRENT CONSENTED DEVELOPMENT**		**PROPOSED LIMITS TO FUTURE DEVELOPMENT (i.e. proposed acceptable level of wind energy development)**							
Landscape Sensitivity to Wind Energy Development				**Landscape Capacity** (Related to turbine size)						**Existing/ Consented Developments (November 2017)**	**Current Wind Energy Landscape Type(s)**	**Future Wind Energy Landscape Type(s)**	**Remaining Landscape Capacity** (Related to turbine size)						**Comments on Sensitivity and Capacity**
Landscape Character Sensitivity	Visual Sensitivity	**Landscape Sensitivity**	**Landscape Value**	**15-<30m**	**30-<50m**	**50-<80m**	**80-<120m**	**120-<150m**	**150 ~ 200m**				**15-<30m**	**30-<50m**	**50-<80m**	**80-<120m**	**Over 120m**	**150 ~ 200m**	
SANDSTONE RIDGES AND PLATEAU																			
Landscape Character Area: ***44. Slievemore***																			
Med	Med	**Med**	**Low/ Med**	●	●	●	●	●	◯	92 consented turbines of sizes up to 'large'. Large wind farms at Slieve Divena and Crockagarran.	*Wind Turbine Landscape (WTL)*	*WTL*	◐	◐	◐	●	●	◯	**Landscape Analysis:** Landscape has areas of both larger scale upland character and smaller scale lowlands, however settlement and pastures often extend well into higher elevations, with the simpler upland areas of relatively small extent. **Development Capacity:** Upland landscape areas are suited to larger scale wind energy development/ wind farms. Lower elevations have a varied landform in which medium sized developments can be partly concealed within folds in the landscape. There may be some scope of wind farm expansion in the Altmore Forest area.
												Max. Numbers in Group	*1-3*	*1-3*	*1-5*	*5-15*	*5-15*		
												Min Group Separation Distances (km)	*2-3*	*3-5*	*4-7*	*4-10*	*4-10*		

SUMMARY OF LANDSCAPE CAPACITY: CARRICKMORE PLATEAU AND POMEROY HILLS

This region is one of the few within the Local Authority area which has capacity for larger scale wind energy development. Underlying capacity is greatest in the south owing to its larger scale landforms and more expansive areas of simpler upland character. While these do form a backdrop to views from lowland areas, hills tend to have broad profiles and are not particularly distinct in views. Areas to the north have lower capacity because of the smaller scale and more complex characteristics of the Carrickmore Hills, and because the AONB designation is an indicator of high landscape value, restricting capacity for wind energy development.

LOWLAND HILLS LCT

LCAs 25. Beaghmore Moors and Marsh; 43. Carrickmore Hills

Underlying Landscape Capacity

The *Beaghmore Moors and Marsh* form the lower foothills to the Sperrins and are of a smaller scale then the core of the AONB area further to the north. While its character suits a level of smaller scale wind energy development, the AONB designation results in no capacity for turbines greater than 'medium' size (<80m), and then only as scattered single or small turbine groups. This landscape should be maintained as a l*andscape with occasional wind turbines*.

While mostly outside the AONB apart from the Murrins, the character of the Carrickmore Hills is sensitive to wind energy development due its more irregular and craggy landform, lacking the simplicity of landscapes most suited to wind energy development. The hills are also small scale, with landscapes of lowland character. However small-scale windfarm development, comprising a limited number of 'medium' or 'medium/ large' (<120m) sized turbines can be accommodated in this landscape, making use of variations in topography to partially screen and conceal wind turbines and infrastructure. Smaller wind turbine typologies can be sited with farms and properties. This landscape has capacity to appear as a *landscape with wind turbines*, however the landscape around the Murrins has a lower capacity.

Consented wind Energy Development and Wind Energy Applications

The *Beaghmore Moors and Marsh* have limited wind energy development, with consented turbines of no more than 'medium' size (<80m). The *Carrickmore Hills* are significantly more developed for wind energy, including 2 small wind farms using 'medium/ large' typology turbines (101 and 100m turbines). The *Beaghmore Moors and Marsh* are of the *landscape with occasional wind farms* typology, while the *Carrickmore Hills* are approaching a *wind turbine landscape* based on consented levels of development.

There are no known wind energy applications within this area.

Residual Capacity and Guidance for Future Development

Wind Turbines

Residual capacity in both areas is very limited, and additional development within the *Carrickmore Hills* would need to be carefully considered to ensure that the area does not develop into a *wind turbine landscape* which would overwhelm the relatively small scale of the hills. Sites most suited to 'medium/ large' (80<120m) typology turbine groups are already utilised, and while some other sites may be of character suited to small wind farms, e.g. west of existing turbines at Cregganconroe, it may be desirable to leave areas such as these wind farm free to provide relief from views to wind farms and retain rural landscape characteristics. Capacity for future development is likely to be for well sited developments of 1-2 turbines associated with farms or rural properties, taking advantage of landform screening particularly for larger turbine sizes. Development around the Murrins and within the AONB should be very limited to maintain their scenic qualities, and views to Mullaghcarn and other prominent Sperrin hills should be maintained.

Ancillary Elements

The varied terrain provides opportunities for accommodating low level infrastructure associated with wind energy developments, with tree planting likely to be an effective landscape and visual mitigation. Buildings such as control buildings, substations etc should be of a scale similar to farm buildings already within the landscape. Large transmission lines and pylons would and add to visual clutter in a landscape already characterised by wind energy. Overhead transmission lines and pylons should be sited so as not to appear dominant against small scale hills, and the siting of pylons close to larger scale wind turbines should be avoided.

SANDSTONE RIDGES AND PLATEAU LCT

LCA 44. Slievemore

Underlying Landscape Capacity

Larger scale wind energy development can be accommodated in higher parts of this landscape, however there are more lowland areas, and areas where the landform is a smaller scale where only smaller wind energy typologies are suitable. The plateau landscapes near Altmore Forest and Slieve Divena have capacity for 'large' (120<150m) wind turbines, albeit if wind farms are to be sited in areas of upland character turbine numbers will be limited. Smaller landforms, typically ridges between valleys and smaller hills towards the west and north, have a much lower capacity due to their smaller scale and lowland character. The upland areas are in relatively close proximity to a number of small settlements, such as Carrickmore, Sixmilecross and Beragh, while some of the valleys running through the LCA are relatively populated, and this presents a constraint to the size and scale of wind farm development. Undulating terrain and forestry/ woodland provides opportunities for accommodating wind farm infrastructure within the landscape.

Parts of this landscape can be developed as a *wind turbine landscape*, with other areas more suited to the less a intense development typology of a *landscape with wind turbines.*

Consented wind Energy Development and Wind Energy Applications

The main wind farm developments, with turbines of 'medium/ large' or 'large' size, are located at Slieve Divena (12x100m and 8x125m turbines), Crockagarran (7x125m), Gortinfinbar (5x125m), Croackbaravally (3x127), Altamuskan (3x110m) and Inshative (6x125m, 4 in FODC). There are various single or small groups of 'medium' (<80m) or smaller sized turbines throughout the LCA sited on smaller scale landforms. Much of this landscape is therefore a *wind turbine landscape*.

There is only one known application wind turbine, a 'medium' sized single turbine, potentially replacing an existing consented development of the same size.

Crockagarran wind farm seen from the south, with the forested Altmore Forest to the left of the photograph, a site with potential capacity for future wind energy development, however small-scale lowlands nearby are a constraint

Residual Capacity and Guidance for Future Development

Wind Turbines

The more upland part of the landscape area has capacity for 'large' typology turbines (120<150m). However, it is not likely that larger typology turbines (i.e.150m+) could be successfully used in this area due to the limited extent of the upland area available, the presence of relatively higher numbers of residential properties nearby and the absence of suitable large-scale screening landforms that could contain very large scales of development.

In the south of the LCA there appear to be few opportunities to expand the windfarm area near Slieve Divena, however the existing 100m turbines may be suited to repowering with a larger typology, although the maximum acceptable height would need to be carefully assessed particularly in relation to small settlement nearby, for example Garvaghy 4km to the south west. Further north, the elongated ridge located between the Cloghfin River and its southern tributary appears mostly unsuited to larger scale wind farm development due to its smaller scale character, however there may be capacity for a limited expansion of Crockbaravally wind farm, located where the ridge transitions to a more plateau like landform, although nearby properties are a constraint. There are potentially opportunities for expanding wind farm development at Altmore Forest adjacent to the existing Crockagarran wind farm. This would create some limited change to the existing pattern of wind farm development, with a series of more prominent and closely spaced wind farms clusters seen on the eastern horizon. Turbine sizes should be of no more than 'large' (120<150m), to avoid the domination of the ridge that is likely to arise from 'very large' (150+) wind turbines.

There appears to be very limited capacity for smaller scale wind energy development taking into account consented levels of development. Any further schemes should generally avoid north west facing lower slopes, particularly close to wind farms, to avoid undesirable cumulative visual effects due to intervisibility of larger and smaller typology schemes. Smaller scale schemes should be carefully sited so as not to overwhelm smaller scale hills and enclosed valleys.

Ancillary Elements

Much of this landscape area is of an undulating character and with areas of woodland or forestry, and so there are opportunities for siting wind farm infrastructure in more enclosed parts of the landscape, screened by topography and/ or vegetation. Windfarm infrastructure should not be sited in conspicuous locations within more upland parts of the landscape, and transmission lines and pylons should be sited so as not to be visible on the horizon when the landscape is seen from neighbouring lowland locations. Infrastructure for smaller scale developments (<80m) should be sited according to local conditions, and general guidance is provided in Section 6.7.

6.3 Landscape Capacity and Cumulative Development

This section summarises capacity and cumulative effects for the seven regional landscape character areas of Fermanagh and Omagh shown in Figure 3.3. Figures 6.1 a-f show underlying landscape capacity for differing sizes of wind turbines by LCA. Refer to Figure 6.2 for a map of current cumulative wind turbine landscape types and Figure 6.3 for a map illustrating the proposed future limit to wind turbine landscape types, as described in Table 6.1 above and summarised in the sections below.

6.3.1 Overview of Landscape Character, Sensitivity and Capacity

The landscape of the Fermanagh and Omagh is varied, comprising a number of different landscape types. While many of these are not uncommon in Northern Ireland, the karst landscape of the Fermanagh Cavelands are unique, and the interrelationship between this landscape and the nearby lakelands results in a landscape of high scenic quality and sensitivity. Elsewhere, much of the landscape is of a relatively commonplace lowland drumlin farmland, but bounded and divided by areas of upland plateau extending typically to 200 – 300m AOD. The landcover of these upland areas is also often of enclosed pasture and forestry, with areas of open upland character of limited extent. Areas of true large-scale upland character are mostly found to the north of the Local Authority area in the Sperrins, however the AONB designation covering this landscape area reduces its capacity for wind farm development. While population is concentrated in the main towns of Enniskillen and Omagh, low density settlement is found throughout much of the area, often providing a constraint to larger scale wind energy developments. In summary therefore, much of the landscape is of small scale and populated, and opportunities for significant wind farm development are limited, while the special qualities of upland areas make them unsuited to wind energy developments. However, limited parts of the landscape do have opportunities for larger scale developments, with some scope for increasing the capacity of existing installations through limited extensions or repowering with larger turbine typologies.

6.3.2 Fermanagh Caveland: Summary of Capacity and Cumulative Development

The *Fermanagh Caveland*, including the limestone plateau of the Lough Navar and Ballintempo Forest, loughs Macnean and Melvin, and the limestone uplands of Cuilcagh, is one of the most sensitive landscapes in the Local Authority area. Its rugged and complex karst landscape has a high sensitivity to large scale wind energy development. Upper Lough Macnean, enclosed by scenic upland landscapes on either side, is also sensitive to intrusion from turbines. Parts of this landscape are unsuited to wind energy development of any scale, in particular the core of the limestone plateau and scarp (*LCA 4 The Lough Navar and Ballintempo Uplands and LCA 6 The Knockmore Scarpland);* and the slopes of Cuilcagh *(LCA 9 Cuilcagh and Marlbank).* Elsewhere capacity is only for small scale infrequent wind energy development of 'medium' size (<80m). Within this area the south-western transition from the limestone plateau of *LCA 4 The Lough Navar and Ballintempo Uplands* has some capacity for larger scale wind energy development, overlooking the less sensitive Lower Lough Melvin and the southern parts *LCA 1 Garrison Lowlands*, with small wind farms comprising wind turbines with up to 'large' sized turbines (<150m).

The most substantial wind energy developments in the area are those at the north western and south-eastern extremes of *LCA 4 The Lough Navar and Ballintempo Uplands*, comprising the wind farm developments at Ora Moor and Callagheen, with 'medium/ large' (80<120m) and 'large' (120<150m) turbine sizes respectively, elsewhere wind energy development is very limited.

The recommended landscape objective of maintaining this landscape largely free of wind energy development limits remaining capacity in the area. However, there may be some capacity some expansion of wind energy along the south-western edge of *LCA 4 The Lough Navar and Ballintempo Uplands*, where 'large' typology turbines are likely to be acceptable at the current location of the Callagheen wind farm, albeit the windfarm not greatly extended in size. The Ora Moor windfarm may be suited to limited expansion towards the north but away from Upper Lough Macnean. In between the two windfarms there is potential capacity for a turbine cluster/ small wind farm of 'medium/ large' or 'large' typology turbines, sited away from the more sensitive landform features of the area, although suitable sites of sufficient distance from residential properties are few.

6.3.3 Lough Erne Lakeland: Summary of Capacity and Cumulative Development

This landscape area comprises the main lough basins of Upper and Lower Lough Erne in between which lies the main settlement of Enniskillen, overlooked to the west by *LCA 4 The Lough Navar and Ballintempo Uplands* including the escarpment of the Cliffs of Magho. This area also includes *LCA 10 Slieve Russel, Derrylin and Kinawley,* an upland area marking the south-western extent of the Local Authority area. This landscape is mostly of lowland character, with Upper Lough Erne a complex and enclosed body of water, while Lower Lough Erne is much more expansive. Landscape capacity is mostly for occasional wind turbines of 'medium' size or smaller (<80m), making use of the screening provided by the undulating landscape and its enclosing vegetation. Parts of the landscape at *LCA 10 Slieve Russel, Derrylin and Kinawley* are of more upland character, and therefore suited to wind farm development. As the lowland landscape extends from Lower Lough Erne towards Omagh capacity for smaller scale development within the extensive lowland farming landscape increases somewhat. The landscape objective for most of this area is one of a *landscape with no* or *occasional wind turbines*, within localised exceptions where more intensive wind energy development can be accommodated, as identified above.

Consented wind energy development comprises mostly single and small groups of turbines of 'medium' (<80m) or smaller, dispersed through the landscape area. However, the upland landscape at *LCA 10 Slieve Russel, Derrylin and Kinawley* includes a larger scale 18 turbine wind farm (125m) on Slieve Rushen, 5 x 125m turbines at nearby Molly Mountain, plus various 'medium' sized single turbines. *LCA 15 Irvinestown Farmland* has a significant number of consented 'small' to 'medium' size wind turbines, although many of these had not been constructed at the time of the assessment.

Capacity for significant wind energy development within the area has been largely utilised, although there may be limited capacity for additional 'large' (<150m) typology turbines. The closer linking of the Molly Mountain and Slieve Rushen turbines, e.g. through replacement/ repowering of smaller intermediate turbines may be acceptable in landscape and visual terms, subject to more detailed further assessment. Because of the limited scale of the landform it is unlikely that 'very large' (150m+) turbines could be accommodated in this

location. Elsewhere, there is limited capacity for occasional small-scale wind energy developments of 'medium' sized turbines (<80m) and smaller.

6.3.4 Clogher Valley and Slieve Beagh: Summary of Capacity and Cumulative Development

This landscape is mainly one of lowland drumlin farmlands, which is not of particular sensitivity, but due to its small scale and settled character is unsuited to larger scale wind energy development. However, the landscape could accommodate a level of smaller scale development due to the enclosure provided by frequent drumlins and the wooded boundaries to the enclosed pastures which characterise this landscape. Lying between *LCA 12. Newtownbutler and Rosslea Lowlands* and *17. Clogher Valley Lowlands* is the upland plateau of *LCA18 Slieve Beagh*, an undulating upland of rounded hills and small valleys with forestry, pastures and open areas of moorland. This landscape has a capacity for larger scales of wind turbine development, but typically as small groupings of turbines up to 'large' size (120<150m), and utilising the topography to conceal smaller developments of up to 'medium/ large' turbines (<120m). Frequent properties, neighbouring settlements, and the pastoral landscape pattern present a constraint to more extensive levels of development. The SPA designation covering much of this area may also be a significant constraint in relation to natural heritage rather than landscape character. The landscape objective should be a *landscape with occasional wind turbines* in the lowland areas; however, the more upland landscape has capacity to become a *landscape with wind turbines*.

Currently the 5 turbines of the Teiges Mountain wind farm (120m) are the main consented wind energy development in the area, and there are a number of scattered single/ small turbine groups of 'medium' size or smaller.

Some residual capacity for smaller scale wind farm development exists in the more lowland locations, with turbines of 'medium' size or smaller (<80m). In the more upland landscape of *LCA18 Slieve Beagh* there is some residual capacity for wind turbine clusters/ small wind farms of 'medium/ large' turbines (<120m) where they can be successfully concealed in folds in the landscape, so as to reduce their prominence from lowland locations. There may be limited opportunities to extend Teiges Mountain windfarm, however a single large wind farm in this landscape in unlikely to be acceptable because of the relatively small scale of landscape, the frequent presence of settlement, and the limited extent of the larger scale upland areas.

6.3.5 Omagh Basin: Summary of Capacity and Cumulative Development

The *Omagh Basin* is a lowland farming landscape which is bounded in most directions by higher landforms, including the low sandstone plateaus to the north west and south east, and the more elevated landform of the Sperrins and its outlying hills. The more upland sandstone ridge of Brougher Mountain is included within this regional area for the purposes of this assessment. As a predominantly low lying, populated farming landscape, capacity is mostly for small scale wind energy developments of 'medium sized turbines or smaller (<80m), either singly or in small groups. The landscape is relatively enclosed by drumlins, wooded field boundaries and other areas of woodland, reducing internal visibility and enhancing capacity for smaller scale wind energy developments. Parts of the upland area of Brougher Mountain are suited to wind farm development because of their upland character and relatively large scale, while others are of too small a scale e.g. near Topped Mountain, while Brougher Mountain itself is a notable landmark hill, on which wind farm development would be prominent and widely visible. The landscape objective should be one of a *landscape with occasional wind turbines* in lowland areas, however the more upland landscape area has capacity as a *landscape with wind turbines*, with a localised *wind turbine landscape*.

Lowland areas have a relatively high number of consented wind turbines of 'medium' size or smaller although at the time of assessment many of these had not been constructed. The uplands of Brougher Mountain contain the wind farm at Hunters Hill (8 x 101m turbines) which extends into Mid Ulster across the Local Authority boundary.

Cumulative development in this area is reaching the limits of acceptability assuming an approach of 'landscape accommodation', with generally quite limited residual capacity in lowland areas, on the assumption that all consented turbines will at some point be constructed. In the uplands of Brougher Mountain the most suitable site for wind energy development has been utilised, with no other sites for larger scale development identified in this assessment. Opportunities for additional capacity mostly lie in the potential repowering of the Hunters Hill site, which is likely to be suited to the 'large' typology of turbine size (120<150m), subject to careful assessment and siting, with particular consideration given to effects on the nearby settlement of Fintona.

6.3.6 West Tyrone Hills and Valleys: Summary of Capacity and Cumulative Development

The sandstone plateau of the West Tyrone Hills is an undulating landscape of upland character and includes some notable rounded hills at its eastern extent, while to the west the landscape is of a smaller scale and of more defined lowland character as *LCA 14 Lough Braden* approaches Lower Lough Erne. To the north east *LCA 21 Fairy Water Valley* is a lowland, enclosed landscape contained to the south by the neighbouring uplands. The sandstone uplands in this location are relatively extensive, continuing westwards beyond the Local Authority boundary, and include a large expanse of forestry at Lough Braden Forest. Therefore, the landscape has capacity for larger scales of wind energy development at a greater level than that in any other landscape within the Local Authority area. The upland landscape area can accommodate 'large' wind turbines (120<150m), and potentially 'very large' (150m+) turbines in more remote localised areas. Many of the mid-sized, rounded hills are of insufficient size to accommodate expansive wind farm development, and are separated by quite steep sided valleys, some of which are populated, and the outer hills to the east and south overlook more sensitive lowland landscapes. However, to the north around Lough Braden Forest, the landscape is of a more plateau like form and possibly suited to a more extended area of development. This more 'internal' landscape which benefits from screening in some directions from higher landforms may potentially be suited to 'very large' (150m+) turbine developments, subject to careful site assessment and consideration of issues such as turbine lighting. Therefore, within the core upland areas of the landscape a *wind turbine landscape* could potentially be accommodated.

The more upland landscape at the heart of this Regional Character Area is already well developed with 7 wind farm developments, utilising turbines of up to 127m. There is very little development within *LCA 21 Fairy Water Valley*, while to the west there are various existing and consented smaller turbines as single developments or small groups.

The greatest residual capacity therefore lies in the Lough Braden Forest area, where a more consolidated development, incorporating Lough Hill and Castlecraig wind farms may be acceptable. To the west of *LCA 14 Lough Braden* there is some residual capacity for 'medium' sized turbines and smaller (<80m), preferably sited with larger scale landforms when of the 'medium' size (50<80m). The existing windfarms at Pollnalaght have utilised most capacity in this area, and wind farm development extending onto the eastern slopes of the hill is likely to be unacceptable because of impacts to nearby Omagh. Residual capacity at Tappaghan windfarm may be very limited because of its proximity to the settlement of Lack a short distance to the south and its position on outward facing slopes overlooking the *Omagh Basin*. The acceptability of repowering with larger typology turbines here can only be determined through detailed assessment.

6.3.7 Sperrin: Summary of Capacity and Cumulative Development

The Sperrin mountains are the largest scale of landscape within Fermanagh and Omagh. The upland parts of the landscape are of a mostly simple landform and landcover, although valleys located between ridges and hills can be more enclosed, intimate and sensitive. This area also includes *LCA 26 Bessy Bell and Gortin* which comprises a mixture of upland and lowland landscapes, but is important as a 'gateway' to the Sperrins and is of recreational value. While considering landscape character alone, the more upland parts of *LCA 24 South Sperrin* might be suited to sizable wind farm development. However, the AONB designation indicates a nationally valued landscape, and it is unlikely that this level of landscape change could be accepted in the AONB, which is currently free of any wind farm development. Elsewhere, in the valley landscapes, occasional single or small turbine groupings could be accommodated in more enclosed parts. The more lowland parts of *LCA 26 Bessy Bell and Gortin* are of a relatively open basin like character, overlooked by the wind farm at Bessy Bell and surrounded by higher landforms and therefore sensitive to development, with potential undesirable cumulative issues should smaller lowland turbines be seen frequently with those in the uplands. Overall the landscape should remain as a *landscape with no wind turbines/ occasional wind turbines.*

There are very few existing and consented wind energy developments within this area, however Bessy Bell 2 windfarm is at the edge of the area, with 6 x 100m turbines. However, there is a major wind farm application for the Glenlark Forest in the north east of the *LCA 24 South Sperrin* (Doraville Wind Farm), which would create a localised 'wind farm landscape' in the heart of the Sperrins AONB, visible from some of its most remote areas.

Therefore, there is very limited residual capacity for wind energy development within South Sperrin, and because of the prominence of wind turbines on Bessy Bell, including the adjoining windfarm outside of the Local Authority area, there is no capacity for further development on this hill. Further development of turbines up to the 'medium' size (<80m) should be so as to appear as only infrequent features of the more lowland parts of the landscape.

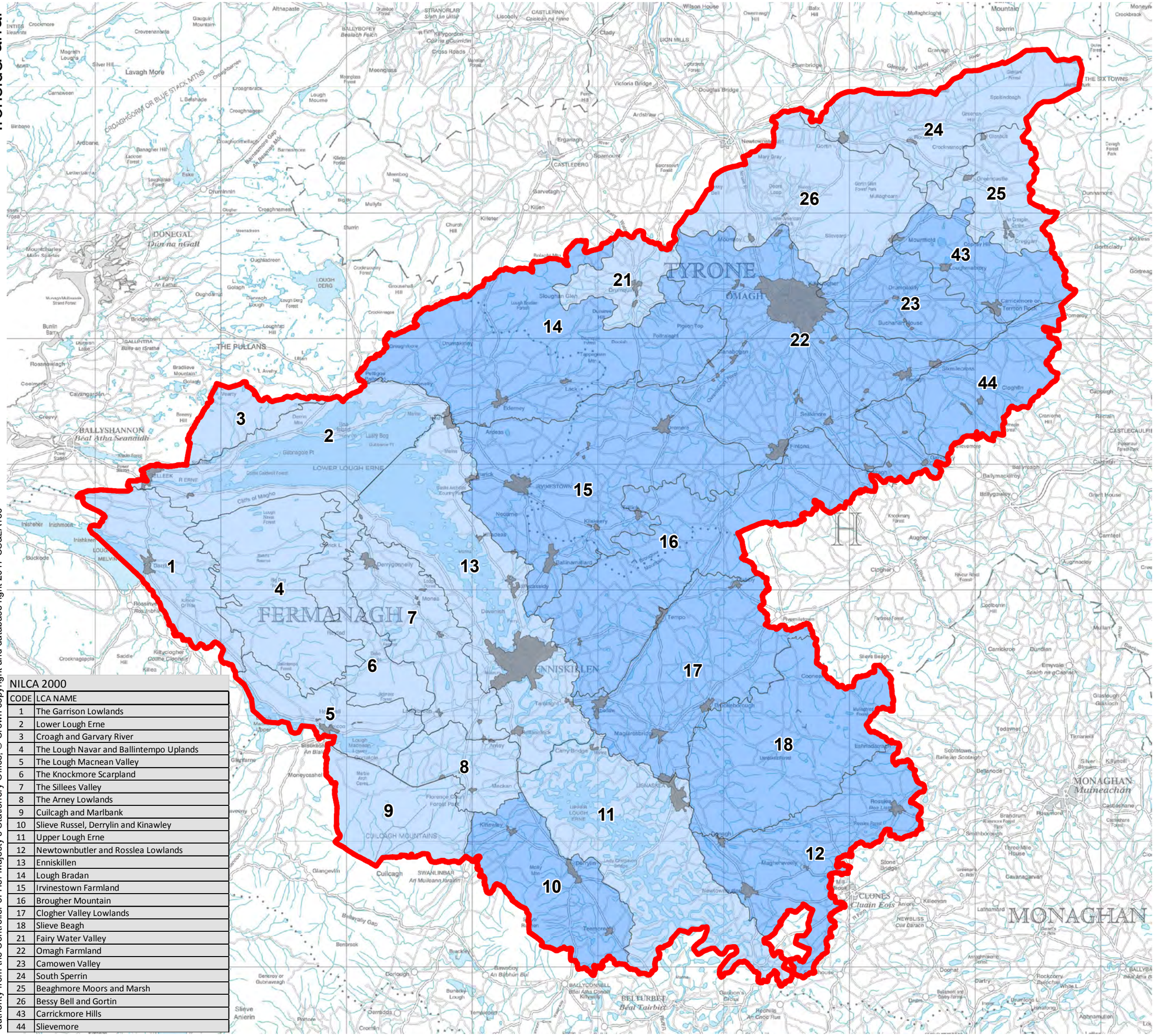
6.3.8 Carrickmore Plateau and Pomeroy Hills: Summary of Capacity and Cumulative Development

This landscape is of a semi-upland character extending southwards from the Sperrins and partly included within the Sperrins AONB designation. While there is a small and well dispersed resident population, the landscapes have some remoteness and roughness of landscape character The AONB designation is a significant constraint to development to the north of the area within *LCA 25. Beaghmore Hills and Marsh* which has only limited capacity for smaller scale wind energy development. To the south there is some variation in the character of *LCA 43 Carrickmore Hills* and *44. Slieve Beagh,* with the latter of larger scale than the former, with a less complex topography and correspondingly a higher capacity for larger scale energy developments. Areas of true, larger scale upland character are relatively limited in extent, with enclosed pastures often extending well into the hills, with the largest capacity locations at Slieve Divena and Crockagarran, already occupied by wind farm developments. With the exception of the areas of AONB within both LCAs *43 Carrickmore Hills* and *25 Beaghmore Hills and Marsh* there is capacity for these landscapes to appear as *landscapes with wind turbines* and localised *wind turbine landscapes*. While the landscape is of sufficient scale to accommodate 'large' sizes of wind turbine, it is likely that 'very large' typologies of 150m+ turbines would not be acceptable on even the larger scale landforms, because of their low elevation, rising to a maximum of approximately 300m AOD, their 'convex' form without enclosure from surrounding hills, the small extent for the upland character area, and their proximity to and likely visibility from nearby small settlements.

There are significant wind energy developments within this area, at Slieve Divena, Sixmilecross and Crockagarran, with turbines of 'large' size up to 125m, and within the Carrickmore Hills there are smaller wind farm developments of small groups of 100m turbines. The *Carrickmore Hills* and *Slieve Divena* LCAs also have considerable concentrations of consented small-scale wind energy developments with turbines of 'medium' size (<80m) or smaller throughout the landscape area. However, at the time of the assessment many of these turbines did not appear to have been constructed.

There is therefore limited residual capacity if the desired landscape objective of mostly a *landscape with wind turbines* is to be maintained, but there is some capacity for wind farm expansion and repowering in the more upland landscapes close to the eastern boundary of the Local Authority area. The repowering of existing 100m turbines at Slieve Divena with 'large' typology turbines (120<150m) may be acceptable, subject to careful assessment and in particular in relation to visual effects from nearby settlements and properties. Elsewhere there appears to be some potential for expansion of wind farm developments at Crockbaravally and Crockagarran into the nearby forestry, but avoiding siting turbines on or immediately around prominent hill tops. Elsewhere the area is largely constrained against further wind farm development.

IronsideFarrar



Legend

- Local Authority Boundary
- Landscape Character Areas

Underlaying Landscape Capacity

- High Capacity
- Medium Capacity
- Low Capacity
- No Capacity
- Urban

NILCA 2000

CODE	LCA NAME
1	The Garrison Lowlands
2	Lower Lough Erne
3	Croagh and Garvary River
4	The Lough Navar and Ballintempo Uplands
5	The Lough Macnean Valley
6	The Knockmore Scarpland
7	The Sillees Valley
8	The Arney Lowlands
9	Cuilcagh and Marlbank
10	Slieve Russel, Derrylin and Kinawley
11	Upper Lough Erne
12	Newtownbutler and Rosslea Lowlands
13	Enniskillen
14	Lough Bradan
15	Irvinestown Farmland
16	Brougher Mountain
17	Clogher Valley Lowlands
18	Slieve Beagh
21	Fairy Water Valley
22	Omagh Farmland
23	Camowen Valley
24	South Sperrin
25	Beaghmore Moors and Marsh
26	Bessy Bell and Gortin
43	Carrickmore Hills
44	Slievemore

Fermanagh & Omagh District Council
Comhairle Ceantair Fhear Manach agus na hÓmai

Fermanagh & Omagh Wind Energy Capacity Study

Dec 2017 | 50087 / GIS / Fig 6.1a

Figure 6.1a

Underlying Landscape Capacity (15-30m Turbines)

N

0 2.5 5 10 Km

IronsideFarrar

Legend

- Local Authority Boundary

Underlaying Landscape Capacity

- High Capacity
- Medium Capacity
- Low Capacity
- No Capacity
- Urban

NILCA 2000	
CODE	LCA NAME
1	The Garrison Lowlands
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Fermanagh & Omagh Wind Energy Capacity Study

Dec 2017 | 50087 / GIS / Fig 6.1b

Figure 6.1b

Underlying Landscape Capacity (30-50m Turbines)

N

0 2.5 5 10 Km

IronsideFarrar

Legend

- Local Authority Boundary

Underlaying Landscape Capacity

- High Capacity
- Medium Capacity
- Low Capacity
- No Capacity

NILCA 2000	
CODE	LCA NAME
1	The Garrison Lowlands
2	Lower Lough Erne
3	Croagh and Garvary River
4	The Lough Navar and Ballintempo Uplands
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7	The Sillees Valley
8	The Arney Lowlands
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Fermanagh & Omagh Wind Energy Capacity Study

Dec 2017 | 50087 / GIS / Fig 6.1c

Figure 6.1c

Underlying Landscape Capacity (50-80m Turbines)

N

0 2.5 5 10 Km

IronsideFarrar

Legend

- Local Authority Boundary
- Landcsape Character Areas

Underlaying Landscape Capacity

- High Capacity
- Medium Capacity
- Low Capacity
- No Capacity
- Urban

NILCA 2000

CODE	LCA NAME
1	The Garrison Lowlands
2	Lower Lough Erne
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Fermanagh & Omagh Wind Energy Capacity Study

Dec 2017 | 50087 / GIS / Fig 6.1d

Figure 6.1d

Underlying Landscape Capacity (80-120m Turbines)

N

0 2.5 5 10 Km

IronsideFarrar

Legend

- Local Authority Boundary
- Landscape Character Areas

Underlaying Landscape Capacity

- High Capacity
- Medium Capacity
- Low Capacity
- No Capacity
- Urban

NILCA 2000

CODE	LCA NAME
1	The Garrison Lowlands
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Fermanagh & Omagh Wind Energy Capacity Study

Dec 2017 | 50087 / GIS / Fig 6.1e

Figure 6.1e

Underlying Landscape Capacity (120-150m Turbines)

N

0 2.5 5 10 Km

IronsideFarrar

Legend

- Local Authority Boundary
- Landscape Character Areas

Underlaying Landscape Capacity

- High Capacity
- Medium Capacity
- Low Capacity
- No Capacity
- Urban

NILCA 2000

CODE	LCA NAME
1	The Garrison Lowlands
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Fermanagh & Omagh Wind Energy Capacity Study

Dec 2017 | 50087 / GIS / Fig 6.1f

Figure 6.1f

Underlying Landscape Capacity (150-200m Turbines)

N

0 2.5 5 10 Km

Ironside Farrar

Legend

- Local Authority Boundary
- Landscape Character Areas

Existing Turbine Categories

- 15-30m Height
- 30-50m Height
- 50-80m Height
- 80-120m Height
- 120m Height and over

Existing Typology

- Landscape with No Wind Turbines
- Landscape with Occasional Wind Turbines
- Landscape with Wind Turbines
- Wind Turbine Landscape

Derry City and Strabane

Mid Ulster

Fermanagh and Omagh

NILCA 2000	
CODE	LCA NAME
1	The Garrison Lowlands
2	Lower Lough Erne
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4	The Lough Navar and Ballintempo Uplands
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Fermanagh & Omagh District Council
Comhairle Ceantair Fhear Manach agus na hÔmai

Fermanagh & Omagh Wind Energy Capacity Study

Dec 2017 | 50087 / GIS / Fig 6.2

Figure 6.2

Current Consented Development Wind Energy Landscape Type

N

0 2.5 5 10 Km

Ironside Farrar

Legend

- Local Authority Boundary
- Landscape Character Areas

Existing Turbine Categories

- 15-30m Height
- 30-50m Height
- 50-80m Height
- 80-120m Height
- 120m Height and over

Proposed Turbine Categories

- 15-30m Height
- 30-50m Height
- 50-80m Height
- 80-120m Height
- 120m Height and over

Proposed Typology

- Landscape with No Wind Turbines
- Landscape with Occasional Wind Turbines
- Landscape with Wind Turbines
- Wind Turbine Landscape

Derry City and Strabane

Fermanagh and Omagh

Mid Ulster

NILCA 2000

CODE	LCA NAME
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44	Slievemore

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Fermanagh & Omagh Wind Energy Capacity Study

Dec 2017 | 50087 / GIS / Fig 6.3

Figure 6.3

Proposed Limits to Wind Energy Landscape Type

N

0 2.5 5 10 Km

6.4 Overall Assessment of Capacity and Cumulative Development

6.4.1 Fermanagh and Omagh Summary: Landscape Character, Sensitivity and Capacity

The regional summaries above describe a landscape that has highly varied capacity to accommodate wind energy development; from medium to larger scale windfarms to single small turbines, as well as areas which have no capacity to accommodate wind turbines without affecting key characteristics, receptors and/or designations to an undue extent.

The LCTs with the greatest underlying capacity for development are the *Sandstone Ridges and Plateau* landscapes bounding the *Omagh Basin* to the north west and south east, specifically LCAs *44 Slievemore* and *14 Braden Forest*. When seen from neighbouring lowlands areas these uplands do include some more prominent hill summits and other landforms, however they usually appear as low but wide landforms, a desirable characteristic for accommodating larger scale development types.

The two landscape areas mentioned above form part of the enclosure to the lowland undulating farmland of the *Omagh Basin*, and therefore the effect of development on both of these landforms needs to be considered in relation to their cumulative effect on lowland areas. However, windfarms located on landforms either side of the *Omagh Basin*, to the west and east/ south east, would be separated by around 25km. Furthermore, as there is no capacity for major wind farm development in the Sperrins and around the Lower Lough Erne area, this would provide relief from views to windfarms from within the *Omagh Basin*, and cumulative effects may not be overwhelming.

Elsewhere in the more upland landscapes, capacity for larger scale development is limited and exists locally rather than throughout an area of landscape character. Throughout most of the lowland areas there is some capacity for smaller scale developments of 'medium' sized turbines (<80m), and in semi-upland landscapes there are possibilities to accommodate small groupings of 'medium/ large' (80<120m) typologies within the folds of undulating terrain. Other parts of the Fermanagh and Omagh landscape have little or no capacity for wind energy development because of their scenic qualities and status as valued landscapes.

The following sections summarise the underlying landscape capacity for wind energy development throughout Fermanagh and Omagh and cumulative issues associated with current (**November 2017**) levels of development. Four categories of area are discussed, with analysis of landscape resource and current capacity:

1) **Areas with Highest Underlying Landscape Capacity**: landscapes whose characteristics would most easily accommodate extensive, large scale wind energy development without unduly adverse effects.

2) **Areas with Limited Underlying Landscape Capacity**: landscapes whose characteristics would accommodate a more modest and less extensive scale of wind energy development without incurring unduly adverse effects.

3) **Areas with Little or No Underlying Landscape Capacity**: landscapes which, due to their sensitive characteristics and value, can accommodate only the smallest scale of wind energy development, or none at all.

4) **Areas of Significant Cumulative Development**: areas overlapping all of the above categories in which there is a significant level of operational or consented development relative to capacity, which limits future capacity for development

Reference should be made to the summary diagram in Figure 6.4 in which the four types of area are shown. Detailed analysis of LCAs within these areas and guidance for proposed developments is given in Table 6.1 above.

6.4.2 Areas with Highest Underlying Capacity.

Areas in Fermanagh and Omagh with the highest underlying capacity for wind energy development are potentially able to accommodate windfarms with larger turbine sizes. This may vary from relatively small windfarms with 5-10 turbines of 'medium/ large' typology (80<120m), to more extensive windfarms with 'large' turbines over 120m in height. Proposals in these strategic areas will need to respond to the landscape's pattern and scale, take account of screening and visibility, and areas of higher complexity and landscape pattern. Associated wind farm infrastructure in these areas should be subject to appropriate siting, design and other mitigations, however no significant constraints to accommodating ancillary elements are identified. The main strategic areas are:

- Areas of *LCA14 Lough Braden,* in particular centred around Lough Braden Forest where there is a relatively large-scale landscape, including forestry, where the landscape also benefits from a degree of screening from surrounding landforms. This landscape can accommodate 'large' and potentially 'very large' (150m+) turbines in some locations. Constraints to development may include the Ulster Way which passes through the landscape, the presence of some population, and proximity to more settled lowland areas, where developments may impact on landscape character and views.

- Upland parts of *LCA 44 Slievemore* particularly around Slieve Divena and Crockagarran, which have capacity for 'large' typology turbines, although areas with upland characteristics tend to be limited in their extent. Proximity to neighbouring settlement and the nature of the topography mean that 'very large' typology wind turbines would appear very prominently on this landform and there is considered to be no capacity for turbines of this size.

- The upland landscape of *LCA 10 Slieve Russel, Derrylin and Kinawley* is an outlying hill to the south east of Cuilcagh, separated by the Blackwater River. While in relatively close proximity to more scenic landscapes at Cuilcagh and Upper Lough Erne, it is a fairly peripheral feature in relation to these landscapes. The physical extent of the main upland area is the main constraint to wind energy development, which has the capacity to accommodate development with 'large' typology turbines, however 'very large' (150m+) turbines would potentially appear out of scale with the landform.

- The south-western fringe of *LCA 4 Lough Navar and the Ballintempo Uplands* which has a simpler landform than the limestone escarpments to the north and east, in particular the area between Lower Lough Macnean and Lough Melvin which is separated from the scenic landscape of *LCA 9 Cuilcagh and Marlbank*. Capacity depends upon the degree to which it will be possible to site windfarms within a landscape with an area of complex landform and geology, features of which are local

landmarks and contribute to walks within the area. This landscape has capacity for well separated developments of 'medium/ large' or 'large' wind turbines (<150m), well separated so as not to dominate this extended land form.

- The sandstone uplands of *LCA 18 Slieve Beagh,* where the central area has the potential to accommodate a small wind farm utilising 'large' turbine typologies. However, the SPA designation is likely to be a significant constraint to wind farm development in parts of the LCA.

- Those limited parts of *LCA 16 Brougher Mountain* with upland character, but avoiding wind farm developments on Brougher Mountain itself, and also avoiding larger wind energy developments towards the south west of the LCA where close to Upper Lough Erne. This landscape has limited capacity for 'large' turbine sizes (<150m).

6.4.3 Areas with Limited Underlying Capacity

Areas with limited underlying capacity could accommodate small groupings of carefully located turbines under 80m or, in some cases, under 120m height. In some locations this may amount to a small-scale windfarm, but in others only single or lower height turbines could be accommodated. The larger developments would best be accommodated in the larger scale semi-upland landscapes such as those of the *Sandstone Ridges and Plateau* landscape types unsuited to larger scale wind farm development, while many lowland landscapes could accommodate 'medium' (<80m) sized turbines at relatively low densities. Areas with limited underlying capacity are as follows:

- Eastern parts of the *LCA 43 Carrickmore Hills*, which is a landscape of relatively small scale but does have capacity to accommodate small developments of turbines of 'medium/ large' size (<120m) if carefully sited. Western parts of the LCA are more sensitive as they are located within the Sperrins AONB. Wind turbines should be sited so as to minimise impacts to views of Sperrin hill summits.

- The parts of *Sandstone Ridges and Plateau* landscape types (LCAs *16 Brougher Mountain, 18 Slieve Beagh*, *14 Lough Braden*) in areas of more semi-upland character, which may include more marginal pastures. In these locations collections of 'medium/ large' turbines (<120m) could be accommodated within the landscape as the topography would tend to restrict long internal views or views from adjacent lowland locations.

- The less sensitive lowland landscapes, including the LCAs *15 Irvinestown Farmland, 22 Omagh Farmland, 17 Clogher Valley Lowlands*, *12 Newtownbutler and Rosslea Lowlands* and *23 Camowen Valley.* While these lowland landscapes are of a relatively small scale, they tend to be quite extensive, and frequent drumlins and boundaries to small wooded pastures often restrict internal visibility. While the objective of these landscapes should be for them to appear as *landscapes with occasional wind turbines*, contrasting with the more developed uplands, there is capacity for single/ small turbine groupings of 'medium' sized turbines or smaller (<80m).

When assessing the acceptability of smaller scale wind energy development, proximity to larger scale wind farms and the potential for cumulative effects arising from intervisibility between developments of different scales should be considered. No significant constraints to the accommodation of accompanying wind farm/ wind energy infrastructure are identified subject to careful siting, design and adoption of appropriate landscape and visual mitigations.

6.4.4 Areas with Very Limited or No Underlying Capacity

Significant areas of Fermanagh and Omagh have a high sensitivity and/or value and thus very limited or no capacity for wind turbine developments. These areas can only exceptionally accommodate well separated turbine developments below 80m. Some areas are not suitable for wind energy development. These areas are:

- The settings the Upper and Lower Lough Erne (*LCAs 2 Lower Lough Erne, 13 Enniskillen, 11 Upper Lough Erne, 3 Croagh and Garvary River)* because of their scenic qualities, recreational value and landscape value, including the Special Countryside Area designation of the islands of Lower Lough Erne and the ASQ of *LCA 3 Croagh and Garvary River.* Parts of *LCA 13 Enniskillen* would be able to accommodate more frequent wind energy where associated with settlement or industrial/ commercial land uses.

- *LCA 9 Cuilcagh and Marlbank,* because of its scenic and rugged landform, and strong integrity as an undeveloped upland including the landmark feature of Cuilcagh Mountain which is recognisable in the wider landscape, upon which wind energy would be a significant intrusion.

- A series of adjoining LCAs west of the Lough Erne valley, including the majority of *LCA 4 Lough Navar and Ballintempo Uplands*, *LCA 6 The Knockmore Scarpland*, eastern parts of *LCA 5 The Lough Macnean Valley*, *LCA 7 The Sillees Valley* and *LCA 8 The Arney Lowlands.* These landscapes form part of, or the setting to, the limestone karst landscape unique to Northern Ireland, which has high scenic qualities and recreational and tourism interest, as recognised through the UNESCO Global Geopark status.

- *LCA 1 The Garrison Lowlands*, particularly its western parts which form the setting to Lough Melvin and is identified as an ASQ.

- *LCA 26 Bessy Bell and Gortin, and LCA24 South Sperrin.* These are valued landscapes because of their AONB designation, and contrast with/ provide relief from areas which are more intensively developed wind energy landscapes. Any large-scale wind energy development in these LCAs would diminish their scenic qualities and risks compromising the integrity of the Sperrins AONB. It is of note that the equivalent national level landscape designation in Scotland, National Scenic Areas (NSA), are

identified in Scottish Planning Policy as locations where wind farms are not acceptable.[17]

It is recommended that these landscape areas remain sparsely developed or undeveloped to protect their character and to provide gaps between clusters of development.

6.4.5 Areas of Significant Cumulative Development

As described above, a number of landscape types and areas in Fermanagh and Omagh have an underlying capacity to accommodate wind energy development. However, existing and consented development in or nearby some of these areas means that further significant development may exceed the cumulative capacity of the landscape. The areas where cumulative impact limits capacity for further development are shown as hatched areas in Figure 6.4. A large part of this area is broadly contiguous, but is subdivided into the following areas to allow more localised guidance to be provided.

a) Carrickmore Hills;

b) The upland *Sandstone Ridges and Plateau* landscape around Slievemore;

c) The upland landscape south of Brougher Mountain;

d) The eastern parts of the *Omagh Basin* (*Irvinestown* and *Omagh Farmland* LCAs) which transition to the above landscape areas a - c;

e) Slieve Rushen; and

f) Lough Braden

These areas are defined by the following criteria:

1) The developed areas of windfarms and turbines (operational and consented) and the cumulative extent of their impacts on the surrounding landscape;

2) The underlying landscape capacity within the LCAs and for those surrounding them; and

3) The extent of area within which further significant development should be limited to avoid extending cumulative landscape and visual impacts between the groups of turbines within the cumulative area and other turbines outside the area.

The boundaries shown in Figure 6.4 are indicative. They are described in more detail for each area in Table 6.2 below, together with the main objectives for limiting further development. In the case of specific development proposals there should be an assessment relating to the detailed criteria.

[17] Scottish Government (2014) *Scottish Planning Policy*, Table 1

Table 6.2: Description and Guidance for Areas of Significant Cumulative Development: (see Figure 6.4 for locations)

a) Carrickmore Hills	
Description Area defined by *LCA 43 Carrickmore Hills*.	**Development Situation and Key Objectives** As of November 2017, there are 49 consented wind turbines within the part of this LCA within Fermanagh and Omagh, including two small windfarms of 5 turbines each (100m/ 101m turbines). Many other single turbines are of the 'small/ medium' or 'medium' size, and typically around 50m in height. Consented turbines are mostly in relatively close proximity to each other, frequently separated by no more than 1km. Key objectives governing the area are: • To prevent a proliferation of single wind turbines seen within this relatively open landscape; • To ensure that developments of small windfarms, currently of 5 turbines, are not expanded, so that their scale remains in keeping with that of the landscape. There appears to be no capacity for further small-scale wind farms in the area. • To ensure that smaller single turbine developments do no visually coalesce with small wind farm developments; • To ensure that wind farm developments are limited in the numbers and sizes of wind turbines used, so as not to overwhelm the limited scale of the landscape; and • To ensure that the more sensitive parts of the landscape of the Murrins to the west of the LCA and within the AONB remain largely free of wind turbine developments.
b) Slievemore	
Description Landscape area mostly encompassed by *LCA 44 Slievemore* south of the settlements of Pomeroy and Carrickmore.	**Development Situation and Key Objectives** As of November 2017, the part of the landscape area within Fermanagh and Omagh is one of the most developed for wind energy, including 92 consented wind turbines with heights up to 125m, and two substantial wind farm clusters at Slieve Divena and Crockagarran. There are also relatively high numbers of consented 'small' to 'medium' sized turbines (<80m). Key objectives governing the area are: • To limit smaller scale wind energy developments within the area, so that the wind energy landscape is defined more by concentrated larger scale windfarm developments, with other areas mostly free of wind energy, avoiding the adverse effects from views to small and large wind energy typologies together, and to ensure a coherent wind energy landscape. • To ensure that larger wind farm developments and their infrastructure are not seen to extend down outward facing slopes or valley sides, with turbines remaining clearly within areas of more upland landscape character. • To ensure turbines sizes account for the relatively limited extent of suitable upland landscape available, the proximity of smaller scale lowlands, and the presence of visual receptors in nearby properties and settlements.

c) Brougher Mountain	
Description The upland area extending south from *Slievemore,* defined largely by *LCA 16 Brougher Mountain.*	**Development Situation and Key Objectives** This landscape currently includes a single wind farm development at Hunters Hill/ Ledrum's Bridge, extending into the neighbouring Local Authority area. Hunters Hill windfarm utilises 'medium/ large' wind turbines. There are significant numbers of single/ small wind turbine groups of 'medium' size turbines or smaller. Key objectives governing the area are: • To ensure that the Hunters Hill windfarms remains as the significant cluster of wind farm development in the area, avoiding excessive spreading of wind turbines along the ridge; • To ensure that small to medium sized wind energy development do not encroach into the more upland landscapes and are not seen in combined views with larger turbines/ wind farms; • Preventing unacceptable visual impacts to Fintona and other small settlements through any extension/ repowering of Hunters Hill wind farm, through limiting turbine sizes and adopting good design principles; • Ensuring that more distinct hill summits e.g. Brougher Mountain, remain free of wind energy development; and • That 'medium' sized turbines towards the south of the area, towards the more sensitive Lower Lough Erne do not become overwhelmed by wind turbines seen on higher ground, by maintaining recommended separation distances.
d) Omagh and Irvinestown Farmland	
Description Parts of the lowland farming landscape including southern parts of *LCA 15 Irvinestown Farmland* and *22 Omagh Farmland*.	**Development Situation and Key Objectives** Parts of the Omagh Basin have large numbers of consented single/ small turbine groups of 'medium' sized wind turbines. While this landscape does have capacity to accommodate smaller scale wind energy developments, consented schemes are often separated by less than 1km, and a proliferation of wind turbines has the potential to be a defining characteristic of the lowland landscape, rather than one of a *landscape with occasional wind turbines*. Key objectives governing the area are: • To ensure that separation distances between wind turbines are maintained so that they appear as relatively infrequent/ occasional features in the landscape; • To ensure that wind turbines are sensitively sited, for example avoiding prominent positions on top of small land forms/ drumlins; • Where possible encouraging the clustering of turbines of the same type/ size into small groups rather than frequent scattering throughout the landscape; and • Ensuring that larger turbines are sited sensitively in relation to smaller scale features so as not to overwhelm or diminish their scale.

e) Slieve Rushen	
Description Upland areas of *LCA 10 Slieve Russel, Derrylin and Kinawley*.	**Development Situation and Key Objectives** The upland parts of this landscape have significant levels of larger scale wind energy development, with turbines of 'large' size (125m) occupying ridge below the summit at Slieve Russel, and extending northwards to Molly Mountain. There are several smaller typology turbines of up to approximately 60m nearby. Key objectives governing the area are: • To ensure that the larger typology turbines remain within the more upland landscape are and do not encroach into the smaller scale landscapes at lower elevations • To ensure that wind turbine development is not seen to dominate the recognisable landscape feature of Molly Mountain through careful wind turbine siting; and • That undesirable cumulative effects through the siting of smaller typology turbines close to larger ones is avoided, potentially through ensuring that only turbines of 'medium/ large' or 'large' typology (i.e. >80m) are used within the more upland areas. • To ensure that wind farm infrastructure, in particular power lines, remain relatively well concealed on the on the exposed upland slopes and are not seen to add to visual clutter on the ridge.
f) Lough Braden	
Description The landscape comprising the eastern parts of *LCA14 Lough Braden*.	**Development Situation and Key Objectives** This landscape is well developed with wind energy, including 7 wind farms separated typically by no more than 2 – 3km. Castlecraig wind farm has the largest consented turbines in the area (127m). While this landscape has capacity for larger scale wind farm development, including some residual capacity when accounting for existing and consented development, the potential for unacceptable cumulative effects still arises. Key objectives governing the area are: • To ensure that wind farms on the southern and eastern outward facing slopes are limited in their scale and size of turbines to minimise impact to adjacent lowland areas. This may mean that significantly increasing the size of some turbines e.g. at Tappaghan Mountain, may prove unacceptable, and any such proposals would require careful assessment. The siting of infrastructure visible on these outward slopes should be avoided as far as possible. • To ensure that large scale wind energy developments do not encroach into the more populated internal valleys, in particular that of the upper Drumquin River. • To ensure that the largest wind turbines, including potentially those >150m, are sited in the more internal parts of the landscape e.g. the Lough Braden Forest area.

IronsideFarrar

Legend

- Local Authority Boundary
- Landscape Character Areas

Area Capacity

- Areas with Highest Underlying Capacity
- Areas with Limited Underlying Capacity
- Areas with No Underlying Capacity
- Areas of Significant Cumulative Development

Areas with Highest Underlying Capacity
1) Lough Braden
2) Slievemore
3) Slieve Beagh
4) Hunter Hill
5) Slieve Rushen
6) Loch Navar & Ballintempo Uplands

Areas where Cumulative Impact Limits Development
a) Carrickmore Hills
b) Slievemore
c) Brougher Mountain
d) Omagh and Irvinestown Farmland
e) Slieve Rushen
f) Lough Braden

NILCA 2000	
CODE	LCA NAME
1	The Garrison Lowlands
2	Lower Lough Erne
3	Croagh and Garvary River
4	The Lough Navar and Ballintempo Uplands
5	The Lough Macnean Valley
6	The Knockmore Scarpland
7	The Sillees Valley
8	The Arney Lowlands
9	Cuilcagh and Marlbank
10	Slieve Russel, Derrylin and Kinawley
11	Upper Lough Erne
12	Newtownbutler and Rosslea Lowlands
13	Enniskillen
14	Lough Bradan
15	Irvinestown Farmland
16	Brougher Mountain
17	Clogher Valley Lowlands
21	Fairy Water Valley
22	Omagh Farmland
23	Camowen Valley
24	South Sperrin
25	Beaghmore Moors and Marsh
26	Bessy Bell and Gortin
43	Carrickmore Hills
44	Slievemore

Fermanagh & Omagh District Council
Comhairle Ceantair Fhear Manach agus na hÔmai

Fermanagh & Omagh Wind Energy Capacity Study

Dec 2017 | 50087 / GIS / Fig 6.4

Figure 6.4

Wind Turbine Development Opportunities & Constraints

N

0 2.5 5 10 Km

6.5 Capacity for Further Development

This assessment has demonstrated that the landscape of Fermanagh has the underlying capacity to accommodate both small and larger scales of wind energy development of varying extents, according to the varied characteristics of the landscapes and the visual sensitivities across the region.

Figures 6.2 and 6.3 show how the proposed limits to development, in terms of *wind energy landscape type*, are almost the same as those that exist with current levels of operational and consented development, suggesting there is limited residual capacity. Nevertheless, at current levels of consented development there is some limited remaining capacity for further appropriate wind energy development in parts of the Local Authority area. The following section highlights the areas with remaining capacity. However, Tables 6.1 and 6.2 should be consulted for detailed guidance.

6.5.1 Areas with Most Remaining Capacity

The greatest scope for further development at the larger scale lies within *LCA 14 Lough Braden*. The forested landscape north of Lough Braden and east of Lough Lack has potential capacity for further wind farm development, thereby creating a wind farm cluster in this area. This also includes the potential repowering of existing wind farms with larger typology wind turbines, up to the 'large' wind turbine typology (120<150m). Some of the larger scale interior parts of this landscape may be suitable for 'very large' (150m+) wind turbines, however opportunities may be limited because of the relatively small extent of the area in question and proximity to sensitive residential receptors. Due to the features and character of the landscape, no significant difficulties are identified with integrating associated wind farm infrastructure into this landscape, assuming sensitive siting, design and the adoption of appropriate mitigation treatments.

6.5.2 Areas with Limited Remaining Capacity

Areas with limited remaining capacity include areas with underlying capacity for larger turbines that are limited by cumulative development and existing/ consented windfarms, and areas with underlying capacity for smaller windfarms and/or smaller types of turbine development that remain undeveloped:

- The Hunters Hill area which would potentially be suited to repowering with 'large' (120<150m) turbines, and potentially extended eastwards to a limited degree (*LCA 16 Brougher Mountain*);
- Repowering of the Slieve Divena wind farm to 'large' size turbines (120<150m), however opportunities for extending the windfarm with Fermanagh and Omagh appear limited (*LCA 44 Slievemore*);
- Extension of wind farm development south east from Crockagarran wind farm into Altmore Forest, and the limited extension of Crockbaravally Wind Farm (*LCA 44 Slievemore*);
- The semi-upland landscape of *LCA 18 Slieve Beagh* has some capacity for smaller scale developments of turbines group up to 'medium/ large' typologies (<120m) and limited capacity for expansion of the existing Teiges Mountain wind farm, subject to constraints presented by the SPA;
- A potential limited expansion of larger scale wind energy developments at the south-western fringe of *LCA 4 Lough Navar and Ballintempo Uplands*; and
- Some 'small' to 'medium' sized wind turbine developments (<80m) in the less developed lowland locations, such as *LCA 17 Clogher Valley Lowlands* or *LCA 12 Newtownbutler and Rosslea Lowlands*.

In all of these areas, undulating terrain and/ or the presence of forestry and woodland is likely to allow infrastructure associated with wind energy development to be accommodated within the landscape without unacceptable landscape or visual effects, subject to their careful siting and design.

6.5.3 Other Landscape Areas and Urban Areas

Within many of the remaining LCAs of Fermanagh and Omagh there is very limited remaining capacity for small scale wind energy development below 80m. Some parts of these areas have effectively no capacity, for reasons including landscape character, visual sensitivity and/or landscape value. These areas include:

- The nationally designated Sperrin AONB;
- The tranquil, open landscapes around Upper and Lower Lough Erne which are sensitive to intrusion from industrialising influences;
- A number of Registered Parks, Gardens and Demesnes;
- The complex landforms of the karst landscapes to the south west; and
- Locations critical to the setting of settlements.

Whilst it is recognised that some parts of urban areas may be able to accommodate wind turbines, this study does not assess the capacity of urban areas. Consequently, urban areas have not been included in the maps in 6.1 - 6.4 and the guidance in Table 6.1. Factors specific to townscape and urban planning are likely to guide location; however, the effects of larger turbines on adjacent rural LCTs and cumulative areas should be taken into account.

6.6 Existing Developments: Extensions and Repowering

As a well-developed wind energy landscape, much of the future residual capacity in Fermanagh and Omagh lies in the potential extending and/ or repowering of existing wind farms. Some specific considerations relating to the nature of wind farm extensions and/ or repowering apply:

- The design of extensions and repowering schemes should take into account the scale and context of existing wind energy development in the surrounding area that will be

added to, replaced and/or operational during the lifetime of the proposed extension/ repowering scheme.

- In the case of extensions, the location and design of extensions relative to the original scheme is critical. This should take account of turbine size and layout, the remaining capacity for extension without unduly extending effects, and the remaining lifespan of the original scheme.

- Particularly in the case of repowering, opportunities for mitigating adverse effects of earlier, less well designed, schemes should be grasped. This may include more harmonious turbine arrangements or reducing the developed area as more energy can now be delivered by fewer, larger turbines.

The nature of future proposals will be affected by the wider changes to onshore wind energy driven by advances to technology and changing economic circumstances. Currently the main anticipated change is the greater size of, and spacing between, modern commercial turbines. In essence, applications for repowering should be considered *de novo*.

6.7 Guidance for Single/Small Turbine Developments and Ancillary Elements

Wind Turbines

This cumulative assessment and capacity study has detailed the current distribution of all sizes of wind turbines of 15m or above when determining capacity for further development. This is because the smallest turbines (less than 15m), being of a similar height to built structures and trees found commonly throughout the landscape, do not have the same eye-catching prominence and extensive visibility of larger turbines. They do not therefore have the same issues of wide scale cumulative effects across extensive landscape areas.

The issues relating to design and siting of small turbines concern mainly their localised effects on the area in which they are sited rather than wider cumulative effects on landscape character. Small wind turbines should be judged on their own merits, assessed against the criteria that apply to most other domestic or farm scale built structures. Landscape and visual considerations may include the following:

- Effects on designations including landscape quality designations, Scheduled Monuments, Listed Buildings, Conservation Areas;

- Location in relation to scenic viewpoints;

- Relationship to skylines;

- Relationship to other structures and buildings;

- Location in relation to approaches to and setting of settlements;

- Proximity to residential properties;

- Localised cumulative effects including potential for visual confusion or cluttering areas with significant numbers of small turbines and/or close proximity to other similar larger structures including taller wind turbines and electricity pylons.

Larger wind turbines are more often than not seen against the sky. The approach to colouring has been to adopt a neutral light grey colour relating to the sky colour most likely to be encountered as a backdrop. Small wind turbines are often fully or partially backclothed against landforms and/or trees, giving a closer relationship to the ground than the larger structures. It may therefore be appropriate to consider colouring small wind turbines a darker grey, green or brown to reduce their visibility when seen against backdrops, or close to buildings. Further guidance on the siting of smaller wind turbines is given by SNH[18].

Ancillary Elements

Infrastructure associated with small scale wind turbine developments (<80m) may include access roads, transformer units, grid connections and in future energy storage systems. The siting of such infrastructure should be mindful of the considerations outlined above for the siting of wind turbines, but generally the landscape and visual effects of ancillary elements for smaller wind energy developments are highly localised, these features typically being ground based elements of limited size and extent.

Smaller scale wind energy developments can be sited in a variety of landscape situations, however they are often located in lowland locations where the landscape might typically include other built elements, roads, tracks, woodlands, and enclosed farmland, and the overriding objective should be to maintain existing landscape characteristics through the careful integration of infrastructure with existing landscape features.

Screening with existing or new woodland planting will typically be effective in mitigating many landscape and visual effects, however the following measures will also assist with the integration of wind energy infrastructure into the landscape:

- Utilising existing access tracks to maintain existing field patterns, and where new tracks are necessary ensuring they respect the existing landscape pattern, for example by following existing field boundaries as much as possible;

- The appropriate selection of materials and colours for buildings to minimise their prominence in the landscape and to respect existing building styles;

[18] SNH (March 2012) *Siting and Design of Small Scale Wind Turbines of between 15 and 50 metres in height*

- Associating buildings with those already existing in the landscape where possible, to avoid any apparent proliferation of built elements;
- Ensuring that local topography is respected, by ensuring that features are not sited prominently upon local landforms, that access tracks are aligned sensitively, and topographic screening is utilised where possible;
- Where possible the sharing or clustering of elements associated with neighbouring developments; and
- Minimising visual clutter from grid/ power connections, utilising underground connections where possible, or siting over ground connections to respect landscape patterns, utilising screening and backcloth provided by trees and landforms.

REFERENCES

Northern Ireland Environment Agency (2000) Northern Ireland Landscape Character Assessment

Northern Ireland Environment Agency (2016) Northern Ireland Regional Landscape Character Assessment

Northern Ireland Department of the Environment (2015) Strategic Planning Policy Statement for Northern Ireland (SPPS) Planning for Sustainable Development

Landscape Institute and Institute of Environmental Management & Assessment (2013) Guidelines for Landscape and Visual Impact Assessment (3rd Edition)

Northern Ireland Department of the Environment, Planning and Environmental Policy Group (2009) Planning Policy Statement 18 Renewable Energy

NIEA (2010) SPG: Wind Energy Development in Northern Ireland's Landscapes

SNH (2012) Assessing the cumulative impact of onshore wind energy developments: March 2012

SNH (2017) Siting and Designing Windfarms in the Landscape Verson.3

SNH (2015) Spatial Planning for Onshore Wind Turbines – natural heritage considerations

SNH (March 2012) Siting and Design of Small Scale Wind Turbines of between 15 and 50 metres in height

SNH and The Countryside Agency (2002). Landscape Character Assessment Guidance for England and Scotland Topic paper 6: Techniques and Criteria for Judging Capacity and Sensitivity.

SNH/ The Countryside Agency (1999) Landscape Character Assessment Guidance for England and Scotland.

Scottish Government (2014) Scottish Planning Policy

APPENDICES

APPENDIX 1: CUMULATIVE IMPACT AND LANDSCAPE CAPACITY ASSESSMENT METHODOLOGIES

1.0 Background

Cumulative environmental impact is the impact that results from incremental changes caused by past, present or reasonably foreseeable actions. Cumulative impact is a critical consideration in the case of landscape and visual impacts of onshore wind turbines and windfarms in Scotland due to the current number of existing and consented developments in the landscape, proposed developments in the planning system and the long-term implications of national policy that encourages the development of onshore wind energy generation.

The characteristics of wind turbines that lead to cumulative impacts include:

- The large scale and striking visual appearance of wind turbines and windfarms in most landscapes;
- The great extent of their visibility and the potential for intervisibility between wind turbine developments and as seen by receptors;

The larger modern turbines are prominent, large scale, man-made features and there are few other precedents in terms of scale, height and appearance in most landscapes. Topography aside, they are much taller than any natural features such as trees or most buildings and other structures. Of similar built structures in rural landscapes, electricity pylons are significantly smaller than the largest turbines and although broadcasting masts are often taller they are usually singular and infrequent, whereas wind turbines are built in multiples, often in great numbers. Furthermore, most landscape features are static whereas wind turbines rotate. Smaller turbines may also present issues of scale and appearance in more localised contexts, as well as visual confusion when seen together with larger turbines.

This study on behalf of Fermanagh and Omagh District Council requires the assessment of cumulative development and landscape capacity. However, it is recognised in guidance that the determination of landscape capacity and cumulative impacts is not a straightforward exercise. The background and considerations involved in this process are detailed in this Appendix.

Definitions of the term ‘capacity’ applied to landscape generally refer to the ability to accept a development without a ‘significant’ or ‘unacceptable’ level of change to a landscape. This implies that criteria must be identified, and thresholds must be determined to give meaning to the words ‘significant’ and ‘unacceptable’.

Guidance on the assessment of cumulative impacts and landscape capacity is available from a number of sources, most particularly Scottish Natural Heritage *Assessing the cumulative impact of onshore wind energy developments (March 2012)* but also in UK guidance (eg. *Landscape Character Assessment Guidance for England and Scotland Topic paper 6: Techniques and Criteria for Judging Capacity and Sensitivity. SNH and The Countryside Agency, 2002*) and will be referred to in the following sections.

The determination of ‘cumulative impacts’ and ‘capacity’ is subject to debate. No clear guidance is given in the published information beyond the need for the individual impact assessor or Development Plans to determine what the assessment criteria and significance thresholds are. Reasoned argument applicable to the specific circumstances applies, rather than the establishment of an absolute or universal definition. Inevitably this approach is subject to differences of opinion, with thresholds of significance and views on acceptability often differing depending on the background or vested interests of those involved in the debate.

In the absence of any clearly stated or agreed criteria or thresholds and to progress this study some form of threshold or thresholds need to be defined. In order to do this a number of terms and concepts need to be clarified, defining exactly what is being assessed and how. The purpose of the following section is to focus the subsequent assessment and to provide guidance and a basis for decisions to be made by the appropriate authorities.

2.0 Defining Terms: Sensitivity, Significance, Capacity and Acceptability of Change

Topic Paper 6 of *Landscape Character Assessment: Guidance for England and Scotland (2002)* refers to the fact that the terms ‘sensitivity’ and ‘capacity’ have often been used in an interchangeable manner in landscape character assessment, essentially referring to the ability of a landscape to absorb change without a significant effect on its character. A landscape of high sensitivity is often considered to have a low capacity for change, and vice-versa. Furthermore, sensitivity is used as a key criterion in determining both significance of impact and landscape capacity. In fact, there are subtle but important differences between sensitivity and capacity. This section discusses the differences and interrelationships between sensitivity, capacity and significance in landscape character assessment and how the acceptability of change may be determined.

2.1 Landscape Sensitivity

The sensitivity of a landscape is a measure of its inherent vulnerability to potential changes and their effects on fabric and character. Vulnerability to change can be considered in two ways:

1) As an inherent part of the landscape’s characteristics, regardless of possible types or scales of change that may occur; or

2) In relation to a specific proposed type and scale of change.

In the former case the assessment of sensitivity would be applied in landscape character assessment where no particular change is being contemplated or assessed, and the landscape is being considered in a resource planning context. In the latter case the assessment of sensitivity would typically be applied in an environmental impact assessment where specific changes are envisaged. In the EIA case the sensitivity of the receiving landscape would be assessed against the magnitude of change in order to determine impact significance.

2.2 Landscape Capacity

Landscape capacity is variously described as the ability of a landscape to accommodate (or absorb) change without a significant (or unacceptable) change in fabric or character. This is usually taken to mean whether or not one or more of the key defining characteristics of the landscape is changed such that the overall fabric or character of the landscape is changed, i.e. a 'capacity threshold' is crossed. In the case of windfarms it is primarily landscape character that is being considered, particularly in cumulative assessments.

The determination of landscape capacity is closely related to landscape sensitivity and the determination of significance of impact. However, assessment of capacity is a not necessarily based around the assessment of known development proposals, but rather the hypothetical ability to accommodate particular types of development, such as windfarms before a threshold or series of increasing thresholds are crossed.

According to *Topic Paper 6,* in determining capacity not only the sensitivity of the landscape to the particular type of development is considered but also the *landscape value* of the area concerned. Value may be determined in a number of ways, including by landscape designations (national, regional or local); cultural and historic associations and in terms of how it is valued by those who live in it or use it in some way.

The determination of capacity is primarily a planning tool rather than a reactive or assessment tool. Nevertheless the determination of capacity thresholds can also be used to assess existing levels of development or potential development scenarios such as is the case with windfarm developments in Fermanagh and Omagh.

2.3 Determination of Impact Significance

The principles involved in determining impact significance are the same whether a single or multiple developments are being considered. This involves assessing:

1) The sensitivity of the receptor to the type of change proposed; and

2) The magnitude of change that would result from the proposals.

Sensitivity and magnitude are considered in combination, leading to an overall assessment of impact. This informs a determination of whether the impact is significant in terms of the EIA regulations. In doing this the considerations about what exactly is being assessed should be taken into account and clearly delineated including baseline, types of impacts and specific developments.

The threshold at which significance is determined in relation to the EIA regulations should also be defined prior to assessment. However, this threshold is particularly open to debate and often subject to the perceptions of different groups of stakeholders.

2.4 The Nature of Impacts

The issue of whether impacts are positive, beneficial or neutral is also an important consideration when making decisions on the acceptability of impacts, regardless of their significance. If an impact were considered positive or neutral in nature it is likely that its level of significance would be considered less critical than were it considered negative. Most windfarm developers equivocate this issue by reference to public opinion polls indicating support for renewable energy and the division of public opinion that is apparent over most windfarm developments. This masks the underlying landscape issue that should be considered independently of a windfarm's primary function or other effects.

The purpose of a windfarm is to provide renewable energy involving low levels atmospheric carbon pollution. This accords with current policy and is considered positive and beneficial. Conversely, wind turbines are objects that are unprecedented in scale and appearance in most landscapes, especially the rural area s in which they are mainly located. Many published landscape character assessments of rural areas do not specifically mention wind turbines and windfarms, although increasingly there are guidelines relating to placing them within particular character types. Furthermore, whilst government policy and advice (eg. SPP, web based guidance, SNH guidance) and local authority policy (Development Plans) support their development, it is always with a precautionary note relating to balancing benefits and impacts.

The tone of most guidance is that of achieving a balance of impacts against the positive returns of renewable energy. For example SPP states in paragraph 187:

> *'Planning authorities should support the development of wind farms in locations where the technology can operate efficiently and environmental and cumulative impacts can be satisfactorily addressed.'*

and;

> *'The design and location of any wind farm development should reflect the scale and character of the landscape. The location of turbines should be considered carefully to ensure that the landscape and visual impact is minimised.'*

Web based guidance for onshore wind states:

> *'Wind turbines can impact upon the landscape by virtue of their number, size or layout, how they impact on the skyline, their design and colour, any land form change, access tracks and ancillary components anemometers, substations and power lines. The ability of the landscape to absorb development often depends largely on features of landscape character such as landform, ridges, hills, valleys, and vegetation'.*

and:

> *'As more areas of search are taken up and as more sites are proposed within or near sensitive landscapes, landscape protection and designing appropriate mitigation through conditions and/or legal agreements, will become a more routine consideration alongside maximising the potential of wind energy. In relation to landscape impact, a cautious approach is necessary in relation to particular landscapes which are rare or valued, such as National Scenic Areas and National Parks'.*

Wind turbines are placed in the landscape for a specific purpose other than landscape change. Given this fact and the nature of Government advice, a precautionary approach should be taken in the assessment of impacts by concluding that in most cases the impacts are to some degree negative. The degree of negative impact and level of significance will of course depend on the characteristics of the landscape in which the windfarm is located. It is conceivable that in some degraded or industrial landscapes the construction of a windfarm could be considered a neutral or positive change.

In terms of visual impacts the issue of public opinion is more relevant, but a precautionary note applies in this case as well. Particularly the issue of positive responses to the provision of clean energy needs to be separated from the consideration of visual impact of turbines in the landscape.

2.5 Acceptability of Change

As discussed above there is published guidance on methods of assessment of cumulative landscape and visual impacts of windfarms (eg. SNH, 2012) and separate guidance on the factors that determine impact significance (eg. LI & IEMA, 2002). However, there is currently no generic guidance that defines how to determine the *acceptability* of impacts. Indeed, generic guidance on acceptability may be inappropriate as any judgement on this is contextual and often a case of weighing perceived impacts against perceived benefits. The impacts and benefits will often be different in type and the balance of judgement is to an extent subjective. The acceptability of change in any particular landscape will depend on the nature of the landscape, the significance of the impacts and the purpose of the change. The final judgement is often informed by and weighed against specific development plan policies and material considerations.

The determination of significant change should theoretically be a clearly defined stage in this process, similar to an impact assessment. Nevertheless, as previously discussed, significance in landscape and visual impact assessment is not universally defined and is open to debate. If the significance of change is open to interpretation, then 'acceptability' of change is a still less definable term that is often based on opinion and is open to debate.

What is acceptable to one individual or organisation may not be acceptable to another. What may be seen as unacceptable change in a narrow context (eg. landscape and visual impacts) may be seen as acceptable when considering the overall balance of positive and negative impacts (eg. provision of carbon-neutral energy). In a study of windfarms in the Western Isles (SNH, 2004) the idea of a predetermined 'carrying capacity' is questioned and the concept of *Limits of Acceptable Change* (LAC) is discussed:

> *'LAC is first and foremost a process through which decisions are made on the conditions which are acceptable and then prescriptions are made for the actions needed to protect or achieve those conditions. So the objective of the LAC process is not to prevent change but rather to control it and to decide on the actions required to maintain or achieve the desired conditions. Other key features of LAC are the use of indicators and a monitoring programme. As a process, LAC is always participatory and multi-disciplinary, and may or may not involve a wide range of stakeholders. Whilst the term capacity may still be used in LAC, (recreational) carrying capacity is not a simple, single, absolute value. It is the amount, kind and distribution of use that can occur without causing unacceptable impacts on either natural resources or the perceptions and experiences of the users'.*

This concept requires qualitative judgements about what is important in a landscape or to people using that landscape and what level of change is acceptable (i.e. what types and levels of change can take place before the landscape is considered to be critically or significantly changed). In the context of this study, acceptability of change will be related to cumulative landscape and visual impacts judged against landscape capacity as determined by structured a process of judgement; and the provisions of criteria-based landscape policies. No account will be taken of the other potential impacts or benefits of windfarms. The resulting judgements of this study will need to be balanced against the other benefits or disadvantages of the proposals.

2.6 National and Local Policy

The acceptability of proposed windfarms and cumulative landscape and visual impacts of multiple windfarm development has to be considered in the light of national and development plan policy. National and local policies have been referenced in the main capacity study report.

2.7 Developing a Cumulative Impact Assessment Methodology

2.7.1 Cumulative Impacts

For the purposes of this study, cumulative impacts are taken to be those arising from more than one development of the same type, rather than the accumulation of changes making up one development. In the case of windfarms, cumulative studies concentrate on other windfarms. In practice, other features in the landscape or views (eg. communications masts or electricity pylons) should also be taken into account. Nevertheless, given the singular appearance of windfarms and their generally isolated rural locations, the potential for overlap of cumulative impacts with other developments is more limited.

2.7.2 Baseline

The baseline for a cumulative, or indeed any, assessment is usually taken to include the existing landscape and visual receptors in the study area at the time of assessment. The baseline should include all operating windfarms and, arguably, all consented windfarms as this is effectively the 'permitted landscape'. The assessment of change and significance of impact should be carried out relative to this baseline whether carrying out a standard or cumulative assessment.

Nevertheless, a landscape capacity study leading to the determination of an 'acceptable' level of windfarm development requires consideration of a full picture of all the windfarms in the landscape: operating, consented and proposed, in order to determine the extent and acceptability of change. The fact that there are operating or consented windfarms in an area is not necessarily an indication that the landscape is less sensitive to further development and that capacity is available. Indeed, depending on the landscape type, degree of development and objectives of policy in relation to landscape character, it may mean that

most or all of the capacity is already occupied. Therefore, despite the existing baseline, the development must also in effect be considered relative to the underlying landscape.

2.7.3 Types of Cumulative Impact

Landscape

The assessment of cumulative landscape impacts involves an assessment of change in the fabric and character of the landscape as a result of the combined changes of more than one development. The changes are assessed in relation to defined areas of landscape such as a project study area, landscape character area or designated landscape. As previously discussed, it is effects on landscape character that are the primary focus in relation to windfarms from which all other assessments are derived.

Visual

The assessment of cumulative visual impacts involves an assessment of the change in views and visual amenity as a result of combined changes of more than one development, as experienced by people at their homes and during recreation, travel or work. There are three types of cumulative impact in relation to visual receptors:

1) Combined: more than one development is seen from a single static viewpoint in one arc of view (ie. within the span of one view, without the receptor turning around). This would include particular directional viewpoints or the view from the principal aspect of a residential property.

2) Successive: more than one development is seen from a single static viewpoint by a receptor turning around to encompass more than one arc of view, up to 360^0. This includes high and open viewpoints, or views from all aspects of a residential property.

3) Sequential: more than one development is seen by a receptor visiting a series of viewpoints. This may involve travelling along a linear route or through an area in which views of the developments may be continuous or intermittent and different developments may be seen at different locations. This includes roads, railways, paths and other defined routes or could involve an area such as a designated landscape.

In practice most assessment will include all of these types of impact in order to gain a full picture of how cumulative impacts will be experienced by receptors.

2.7.4 Effect of Pattern of Development on Perception of Impact

Cumulative studies tend to focus on the number of windfarms, turbines or output capacities within a particular area as an indication of level of cumulative impact. Nevertheless, there is not necessarily a simple relationship between numbers, areas and cumulative impact. The pattern of windfarm and wind turbine development, in terms of size, layout and proximity may also affect the perception of cumulative impacts.

The effect of proximity of different windfarms and turbines to one another has a bearing on impacts. Whilst close proximity of two or more windfarms may reduce the total area visually affected, the level of perceived cumulative impact may be increased by juxtaposition of windfarms or turbines of significantly different appearance (due for example to differing turbine sizes or site layouts) leading to a jarring visual clash or an untidy, disorganised appearance.

Furthermore, studies and planning decisions have indicated that there is less resistance to expansion of existing windfarms than to creation of separate new windfarms. In particular, respondents to a survey on impacts of windfarms on tourism in Scotland (Glasgow Caledonian University and others, March 2008) showed little concern about views being affected by one windfarm compared with more than one windfarm being visible in the same view.

> *"A significant proportion of respondents (44%) agreed that they don't like to see several Wind farms in the same view. These results suggest that those respondents who have indicated having a neutral or even positive perspective on individual wind farm sites are less likely to have a similar opinion on a landscape that has several developments in view.*
>
> *This clear result compares with analysis in the previous section where there was a small increase in the negative response as the visual impact increased for an individual wind farm development. This suggests that people see one large scale development in an area as preferable to several smaller scale developments dotted on the landscape.*
>
> *On the other hand, both sets of results also confirm that a definite tipping point exists where wind farm development becomes untenable for a significant number of visitors".*

Current guidance and recent planning decisions are tending towards the concept of concentration of wind turbines into large clusters in certain areas. This is on the basis that this reduces the potential for a widespread dispersal of effects over a larger area and allows areas more sensitive to windfarm development to remain free of windfarm development. SNH guidance now highlights this issue and supports this type of approach where appropriate (*SNH, 2009*).

The policy may also offer advantages in terms of economies of scale for site servicing and electricity transmission. The disadvantages are likely to be that areas chosen for concentration of the turbines are likely to be significantly and adversely affected by development – this being effectively a 'sacrificial' landscape policy. Furthermore, this concept does not necessarily sit well with recent encouragement for smaller scale wind energy development promoted by the Feed in Tariff where turbines are likely to relate to individual properties scattered across the landscape.

2.7.5 Setting Assessment Objectives

What exactly is being assessed depends on the purpose of the cumulative assessment. In the case of an EIA for a single development it is primarily the impacts of the proposal and its contribution to cumulative impacts that is being assessed. Such a study would therefore typically concentrate on areas in which the impact of the windfarm under consideration is

significant and give only slight consideration to areas in which it is not, even if there were significant cumulative impacts from other windfarms.

In the case of a more broad-based cumulative study such as this, it is the overall impact of windfarm developments on a defined study area that is being assessed. Nevertheless this study requires a consideration of the both the full cumulative impact *and* the contribution that specific developments (proposed or operating) make to that impact, in order to inform decisions.

2.7.6 Defining Thresholds of Cumulative Development

The discussion above has defined the terminology and our approach to cumulative assessment. It has isolated the central issues that inform the assessment of acceptability of levels of change. The key requirement is to develop a methodology for defining thresholds of significance and acceptability that are clear and robust enough to be accepted by all sides of the debate. This study as a stage in the debate about acceptable levels of change in the landscape of Fermanagh and Omagh. Whilst we can describe and define what those levels of change might be it is difficult to enforce a universal view as to what levels of change are significant or acceptable.

SNH guidance Siting and Designing Windfarms in the Landscape (SNH, 2017) lists the factors that affect the perception of cumulative impact of windfarm development:

> *'The cumulative impact of windfarm development on landscape and visual amenity is a product of:*
>
> *• the distance between individual windfarms (or turbines),*
> *• the distance over which they are visible,*
> *• the overall character of the landscape and its sensitivity to windfarms,*
> *• the siting and design of the windfarms themselves, and*
> *• the way in which the landscape is experienced.*
>
> *The combination of single turbines and small clusters of turbines can raise the same issues'.*

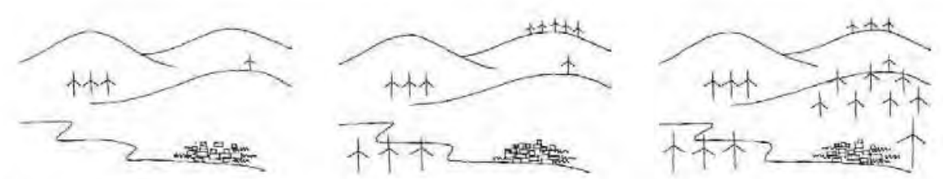
To this list might be added turbine height and windfarm size. In determining an acceptable level of development, it is necessary to clearly define what differing levels of development actually entail.

The SNH guidance identifies three broad levels of cumulative change in the landscape that may be set by local authorities depending on landscape sensitivity and value and local policy objectives:

- **Landscape Protection:** Maintain existing landscape character.
- **Landscape Accommodation:** Accept a degree of change providing this is not detrimental to key landscape characteristics and key visual resources.
- **Landscape Change:** Accept large amounts of change that may have detrimental effects on key landscape characteristics and visual resources.

In determining an acceptable level of development, it is necessary to clearly define what differing levels of development actually entail. The methodology therefore sets out defined levels of change to the landscape and visual environment that might occur or be experienced depending on the size, number and location of turbines to be built within an area.

The descriptions in Table 2.1 below set out a gradated landscape typology that defines the terms of reference for increasing levels of cumulative landscape and visual impact of turbines. It does this by describing their effect on landscape character and the experience of those living in or travelling through the landscape. Further generic illustration of this concept is provided in Part 1 section 5 of the SNH guidance:



Separate isolated features

Windfarms become key characteristic of the landscape

Windfarms become dominant characteristic of the area, creating a 'windfarm landscape'

The purpose of this approach is to address the gap between results of cumulative impact assessment and judgements on acceptability of change. It does not set thresholds of significance or acceptability but it does present a framework that describes levels of change in landscape character and the experience of visual receptors in the landscape. This can then be used to inform and shape the debate concerning the degree of change in a landscape and the acceptability of cumulative impacts and the *Limits of Acceptable Change*.

Table 1: Description of Levels of Cumulative Wind Turbine Development

Landscape Type	Landscape Character	Visual Experience
Landscape with no Wind Turbines	A landscape type or area in which no or very few wind turbines are present, and none are clearly visible from neighbouring areas.	There would be no discernible effects on visual receptors.
Landscape with Occasional Wind Turbines	A landscape type or area in which windfarms or wind turbines are located and/or are close to and visible. However they are not of such a size, number, extent or contrast in character that they become one of the defining characteristics of the landscape's character.	Visual receptors would experience occasional close-quarters views of a windfarm or turbine and more frequent background views of windfarms or turbines. Some of the turbines would not be perceived as being located in the landscape character type or area. No overall perception of wind turbines being a defining feature of the landscape.
Landscape with Wind Turbines	A landscape type or area in which a windfarm, windfarms or wind turbines are located and/or visible to such an extent that they become *one* of the defining characteristics of the landscape character. However, they are clearly separated and not the single most dominant characteristic of the landscape.	Visual receptors would experience frequent views of windfarms or wind turbines as foreground, mid-ground or background features, affecting their perception of the landscape character. However there would be sufficient separation between windfarms and turbines and sufficient areas from which wind turbines are not visible such that they would not be seen as dominating the landscape over all other landscape features.
Wind Turbine Landscape	A landscape type or area in which windfarms or wind turbines are extensive, frequent and nearly always visible. They become the dominant, defining characteristic of the landscape. Nevertheless there is a clearly defined separation between developed areas.	Visual receptors would experience views of windfarms as foreground, mid-ground and background features, to the extent that they are seen to dominate landscape character. Few areas would be free of views of wind turbines.
Windfarm	Landscape fully developed as a windfarm with no clear separation between groups of turbines. Few if any areas where turbines not visible.	Visual receptors would always be close to and nearly always in full view of wind turbines.

The above descriptions of levels of turbine development within a landscape are necessarily simple, factual and generic. They can be applied to any chosen scale of study area, from a region to a landscape type or a single landscape character area. They do not apply to any specific baseline landscape type or types: indeed the character of the landscape is likely to affect judgements on the assignation to a particular level of development. For instance, a large scale landscape may be less dominated and affected than a smaller scale landscape; or a more complex topography, or a densely wooded landscape may reduce the visibility of wind turbines within an area and hence affect the perception by visual receptors. A large landscape character area will require a greater extent and frequency of development than a smaller area to become affected by wind turbines. Furthermore, as discussed in Chapter 5 of this report, there are a number of design and siting factors that affect the perception of cumulative impacts. This includes not only size and number of turbines and windfarms in an area but also the juxtaposition of different layouts including turbine size, positioning and distribution.

The descriptions assume conditions of good visibility covering the 30-35km range that visibility studies and visual impact assessments of larger windfarms adopt as best practice. Clearly this exceeds the requirements for assessments of smaller turbines.

The descriptions are intended to be neutral in that they are purely descriptions of levels of development and the frequency or proximity at which wind turbines and windfarms may be seen. They do not attempt to define the levels of development as being good, bad, acceptable or unacceptable. This is a judgement that would be made when considering specific cases against the landscape type, its capacity for windfarm development, the development policy framework and other material considerations. In this case it is the determination of areas in which cumulative impact has reached the capacity of the landscape.

2.8 Capacity Assessment Method

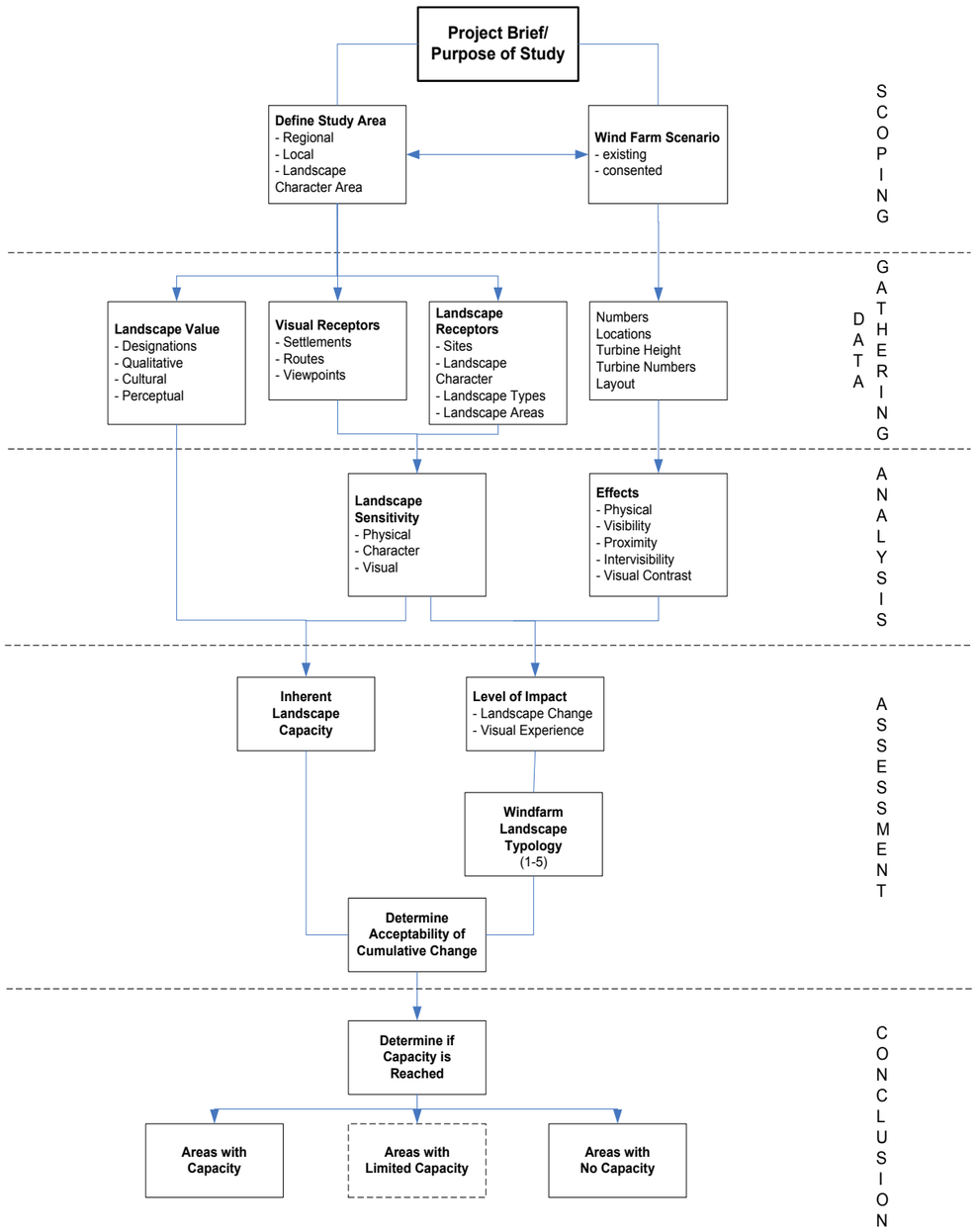
2.8.1 Assessment Process

The considerations discussed above have been taken into account in the staged methodology. This is illustrated by the flow diagram in Figure 1 overleaf. There are 5 stages in the process as shown in Table 2 below:

Table 2: Stages in Landscape Capacity Assessment

Scoping:	Define the purpose of the study, the study area and the wind energy development scenario that is to be assessed.
Data Gathering:	Gather information on receptors (visual and/or landscape); landscape designations and potential constraints; windfarms/ turbines (existing, proposed etc).
Analysis:	Determine landscape character sensitivity, visual sensitivity and landscape value. Determine visibility, direct and indirect landscape effects of the consented windfarms and turbines.
Assessment:	Determine landscape capacity from landscape sensitivity and value. Determine level of cumulative change caused by consented wind turbines, leading to a wind turbine landscape/ visual typology.
Conclusions:	Determine significance and/ or acceptability of existing and future potential cumulative change to the landscape and visual environment.

Figure 1: Cumulative Impact and Landscape Capacity Methodology Flowchart



This is a flexible framework which can be adapted to include the whole study area or focus on subdivisions of landscape, windfarm groupings or development scenarios as required. In this case local landscape character types have been considered, then building up to a picture of the whole of Fermanagh and Omagh.

The assessment includes:

1) Assessment of landscape capacity, cumulative change and acceptable limits of cumulative development in:

   - landscape character types and areas in Fermanagh and Omagh;
   - broad regional landscape character areas;
   - The Local Authority area as a whole.

The cumulative development in each case is expressed via the wind turbine landscape/ visual typologies described in Table 2.1.

The cumulative and capacity assessment for onshore wind energy considers:

1) Current wind turbine landscape typology resulting from operating and consented wind turbines, where there is a high degree of certainty in the cumulative assessment scenario.

2) The limits of acceptable cumulative change expressed in terms of the wind turbine landscape typologies (eg. acceptable level of development in an area might be judged as no more than a *Landscape with Occasional Windfarms*). This is based on a judgement considering landscape capacity but also including policy considerations, emerging guidance on wind turbine development and strategic landscape considerations.

3) The effects of consented wind turbines together with wind turbines currently under planning application – where there is a level of uncertainty regarding the potential cumulative scenario.

Further comment is made on the extent to which the current and proposed type and pattern of development (eg. turbine size, windfarm size and separation between developments) affects the cumulative impacts and, if appropriate, how the area should be developed in order to keep within an acceptable cumulative change.

This information is used to determine where existing development has reached or come close to reaching landscape capacity and further development should be limited. On a more strategic level it identifies areas where development should be limited to provide separation between concentrations of wind turbine development. It also allows the identification of areas where further development may be possible and, in these cases, what level of development would be acceptable.

The assessment is carried out on the basis of the structured methodology in line published guidance in combination with professional judgement, on the basis of a desk analysis of available information on the landscape, on wind turbine developments and through site visits.

The following sections detail the stages in determining landscape capacity.

2.8.2 Determining Landscape Character Sensitivity

The determination of landscape character sensitivity for a landscape character type involves a breakdown of the physical and perceptual characteristics that contribute to landscape character. Each criterion described below is evaluated in terms of **high, medium** or **low** for sensitivity to wind energy development. An overall assessment is derived from a composite of all the criteria. Whilst scale is often important, there is no consistent relative weighting for each criterion, as in each landscape type different criteria may to be critical to the ability to accommodate wind energy development.

Table 3. Determination of Landscape Character Sensitivity

Landscape Character Criteria	Factors affecting level of sensitivity
Scale (primarily in character but also in geographical size of area)	Consideration of horizontal and vertical scale. Larger scale landscapes are generally considered more able to accommodate commercial wind turbines, although a smaller size of turbine may reduce impacts. A larger physical area would be able to accommodate more development depending on other aspects determining capacity.
Landform	The relationship between wind turbines and landform is complex and also dependent on scale. Generally simple landforms: flat, undulating or gently rolling, are considered less sensitive and complex landforms more sensitive, especially if smaller scale. Landforms of sufficient scale may provide opportunities for screening or backgrounding turbines, reducing their visual sensitivity.
Pattern	The pattern of landcover (woodland, field boundaries, crops, roads, settlements etc). Degree of strength, regularity, fragmentation. Minimal or simple landscape patterns are considered less sensitive to wind turbine development. Again the relationship to scale is important.
Development	The degree of built or infrastructure development will affect suitability. In general a greater level of development is more suitable, particularly large scale industrial and extractive industries, or potentially large scale agriculture. Areas with small scale residential development would potentially be more sensitive. Undeveloped areas with remote or wilderness characteristics would also be more sensitive.
Quality	This is a measure of the condition and integrity of the landscape fabric and character. A landscape in good condition with a high degree of integrity is more likely to be sensitive to development. A landscape of poor quality may represent an opportunity to compensate for impacts.
Elements and Features	The elements that make up a landscape, such as woodlands, fields, hedges, buildings and landforms create its pattern but add to its distinctive composition and character. Prominent or distinctive focal features such as steep hills, towers, Loughs add further distinctiveness. The relationship of wind turbines to these affects overall sensitivity.
Context	The characteristics of surrounding landscape areas provide a context that affects perception of a landscape and may affect how wind turbine developments are perceived. Landscapes acting as a backdrop or foreground to other areas are particularly sensitive.
OVERALL RATING	**High/ Medium/ Low**

The following definitions apply to the thresholds of low, medium and high landscape character sensitivity:

Low Sensitivity: A landscape type or area with key characteristics that would be capable of successfully accommodating or co-existing with wind energy development of all or most scales.

Medium Sensitivity: A landscape type or area with some key characteristics that would be capable of successfully accommodating or co-existing with wind energy development but also some characteristics that would be adversely affected and where scale of development may be a limiting factor.

High Sensitivity: A landscape type or area in which most or all key characteristics would be adversely affected by wind energy development and is not capable of successfully accommodating this type of change.

2.8.3 Determining Visual Sensitivity

The visual sensitivity of a landscape area is determined by who is likely to see it, (types and numbers of receptors) and how visible in general the area is. The assessment is made in relation to the visibility of tall structures.

2.8.4 Visibility Analysis

An assessment of the relative visibility of areas of Fermanagh and Omagh has been undertaken. Three sets of visual receptors were determined as follows, and these are identified in Section 4:

- Settlements;
- Routes;
- Viewpoints

Each of the receptor types and locations is representative of locations frequented by people in Fermanagh and Omagh. The assessment was based on an evaluation of the areas least and most visible to receptor groups based on site observations and study of maps and 3D resources.

The three key criteria which determine visual sensitivity are listed in Table 4 below. Each is rated in terms of high, medium or low and a composite rating derived based on professional judgement. The following definitions apply to the thresholds of low, medium and high visual sensitivity:

Low Visual Sensitivity: A landscape type or area which due to its location and characteristics has limited internal and/or external visibility and where wind energy developments would not be visible to many sensitive receptors.

Medium Visual Sensitivity: A landscape type or area which due to its location and characteristics has a moderate degree of internal and/or external visibility and where wind energy developments would be potentially visible to a wide range of receptors, some of which are sensitive.

High Visual Sensitivity: A landscape type or area which due to its location and characteristics has extensive internal and external visibility and where wind energy developments would be potentially visible to a wide range and number of sensitive receptors.

Table 4. Determination of Visual Sensitivity

Visual Sensitivity Criteria	Factors affecting level of sensitivity
Receptors	A greater number of potential receptors including higher population densities, visitor attractions or the presence of busy transport routes will lead to a higher visual sensitivity. The sensitivity and expectations of the receptors is also a contributory factor.
Internal Visibility	Views within a landscape area may be open or restricted by landform, vegetation or buildings. The greater the degree of openness and intervisibility the greater the sensitivity.
External Visibility	A landscape area that is visible from surrounding areas by virtue of its prominence or being overlooked is more visually sensitive than an area that is seldom seen.
OVERALL RATING	**High/ Medium/ Low**

The combination of landscape character and visual sensitivities leads to an overall assessment of landscape sensitivity for an area. Whilst landscape character is likely carry more weight in determining sensitivity, no consistent weighting is given to either factor as it is likely that different landscapes will express them to varying extents depending on their unique characteristics. Professional judgement is used in the case of each landscape type.

2.8.5 Determining Landscape Value

Landscape value reflects the value that society and individuals put on a landscape. This can be officially recognised by some form of local or national designation, or simply by its value to a 'community of interest' (this could be for example a local population, recreational users or conservation interest).

Other characteristics affecting value of a landscape include its historic and cultural associations, particularly if expressed by surviving features and patterns in the landscape. Finally there are more intangible characteristics generally valued by society, such as tranquillity remoteness and wilderness.

The key criteria which determine value are listed in Table 5 below. Each is rated in terms of high, medium or low and a composite rating derived based on professional judgement. The following definitions apply to the thresholds of low, medium and high landscape value:

Low Landscape Value: A landscape type or area which has no landscape designation; little apparent value to communities; no or few cultural heritage designations or associations and has no distinctive or unusual perceptual values.

Medium Landscape Value: A landscape type or area which has at least in part local landscape or landscape related designations; value to local communities; some cultural heritage designations or associations and has some distinctive perceptual values.

High Landscape Value: A landscape type or area, all or much of which is covered by national landscape or landscape related designations; has value to local and wider communities; widely recognised cultural heritage designations or associations and has clearly distinctive and/or unusual perceptual values.

Table 5. Determination of Landscape Value

Landscape Value Criteria	Factors contributing to value
Designations	International, national, regional or local designations relating to landscape in particular, although ecological designations also contribute to the landscape value of an area.
Community value	An undesignated area may be particularly valued by a community of interest: local, or activity-based.
Cultural value	Valued landscapes will have historic associations, be rich in historic features and buildings and/or have literary or artistic associations.
Perceptual	Tranquillity, remoteness or wilderness are valued characteristics, whereas landscapes that are highly modified, developed and populated would have low value in this respect. Landscapes regarded as particularly scenic would also be more sensitive.
OVERALL RATING	**High/ Medium/ Low**

2.8.6 Determining Landscape Capacity

The final assessment of capacity combines sensitivity and value. The following definitions broadly define the relationship between landscape sensitivity/ value and capacity, as the main thresholds on a continuum between no capacity and high capacity:

Low Capacity: A landscape that is both sensitive to wind turbine development and has a high value, and where only a slight level of change can be accommodated without significantly affecting any of the key defining criteria.

Medium Capacity: A landscape that has some sensitivity to wind turbine development and has some aspects of value, and where a moderate level of change can be accommodated which may significantly affect some of the defining criteria

High Capacity: A landscape that has low sensitivity to wind turbine development and has low value, and can accommodate substantial change that significantly affects many of the key defining criteria

Broadly speaking there is an inverse relationship between capacity and landscape sensitivity and value. Nevertheless, it is not a simple relationship and we have not employed the use of a matrix in this study: a balance of judgement is made in each case as landscape value may be a more important factor than sensitivity in some cases; and vice versa in others.

It should be noted that in landscapes where there is existing wind turbine development the capacity for turbines may be reduced. This is because the landscape would be approaching the maximum level of change that it can acceptably accommodate.

2.9 Determining Acceptability of Change

The final stage involves bringing together the cumulative impact assessment and the landscape capacity assessment in a reasoned judgement of the effects of windfarm development on the Fermanagh and Omagh landscape. As explained above, the likely acceptability of a proposed level of development may be determined by considering against the inherent capacity of the landscape. This should also be considered against policy criteria and objectives.

2.10 Scope of Assessment

The scope of the assessment can be varied according to the extent of the study area and the purpose of the study. It can also vary according to the depth and detail required to assess impacts within the defined study area. In the case of a detailed study the method should build up to the wider study area from smaller units.

The current study focuses primarily on the Local Authority area, although areas beyond the boundary are being considered in terms of the visual influence of nearby windfarms and neighbouring contiguous landscape types.

2.11 Wind Energy Development Types

The study considers all sizes of turbines and developments operating, consented or proposed, as well as potential future scenarios where appropriate. However, the capacity assessment and guidance for smaller turbines (under 15m to blade tip) is limited to localised generic siting and design considerations. The smallest turbines are not considered to have the same qualities of scale, prominence and widespread visibility that lead to the wider cumulative impacts that characterise larger turbines.

APPENDIX 2: FACTORS AFFECTING LANDSCAPE AND VISUAL EFFECTS OF WIND TURBINES

2.1 Introduction

There are a number of overlapping and interacting factors which affect the potential landscape and visual effects of wind turbines. The three main turbine factors are:

- Size of turbine (also type/ design/ colour)
- Numbers of turbines (within groups and/ or single turbines spread across an area)
- Distribution of turbine groupings (spacing between groups and/or single turbines)

The effects of these factors will in turn differ depending on the character of the landscape in which the turbines are located.

2.2 Turbine Size

Turbine size is the first factor to consider in assessing the impacts of wind turbines. In particular, smaller turbines are considered to be more appropriate in lowland landscapes, which are usually smaller scale, more complex and varied than uplands, and where there are generally smaller scale features such as trees and buildings that provide a 'scale reference' against a turbine. Conversely, upland landscapes are generally simpler in character, larger in scale and there are fewer human scale reference features, meaning that larger turbines are more easily accommodated (refer to SNH guidance, *Siting and Designing Windfarms in the Landscape*, 2017 v3).

Turbine size for installed or consented commercial onshore windfarms in the United Kingdom varies from ca. 60m to blade tip for windfarms built in the late 1990s/ early 2000s to current maximums of typically just below 150m, although at the time of writing there are a number of applications in Scotland for schemes including turbines in excess of 150m. Considerably smaller turbines are commonly installed for the non-commercial scale proposals typical of previous Northern Ireland Renewables Obligations (NIRO) schemes. In this study we have mapped five size categories which would have differing relationships with the scale and character of the landscape and with one another. These are listed in Table 4.2 below.

There is a significant range of available commercial turbines sizes. However even the smaller commercial turbines are very much larger than any other common vertical object in the landscape, such as a house or trees, with only electricity pylons (typically 25-50m tall) coming close in size. Even the mid-size of turbine falls within this height bracket and is therefore much larger than most trees and buildings. Furthermore, by being kinetic structures, the visual prominence of turbines is increased relative to existing static features

The small domestic scale turbines (<15m) are however closer to the heights of common visual references such as houses and trees and their landscape and visual impacts tend to be much more localised due to localised screening and backclothing by landforms and trees.

Table 2.1. Turbine Size Categories

Blade Tip Height	Typical Use
15m to <30m	Small - Typically used for domestic and farm schemes
30m to <50m	Small/ Medium - Typically used for farm and small industrial schemes
50m to <80m	Medium - Single turbine schemes e.g. farms, industrial and smaller turbines used in commercial schemes
80m to <120m	Medium/ Large - Many current commercial windfarms and some single turbines
120m to <150m	Large - Many current and most proposed commercial windfarms
150m ~ 200m	Very Large - Windfarms with turbines > 150m are increasingly being proposed in the UK

SNH considers that smaller turbines can be used to mitigate landscape impacts in a lowland situation with a smaller scale landscape pattern and scale indicators. As it has to be balanced against losses in output, size reduction should be used in specific cases where a clearly identified benefit can be achieved. The following are criteria by which this may be judged:

- mitigating significant landscape or visual impacts on a valued or sensitive receptor;
- avoiding an adverse scale relationship with a landform or other key landscape element or feature;
- allowing an intervening landform and/or forest to screen views of turbines from certain receptors; or
- achieving a significant reduction in overall visibility by virtue of relationship to surrounding landform and trees.

Where reduction in impact would be a matter of degree rather than a clear quantitative change the benefits are less clear cut.

SNH guidance (*Siting and Designing windfarms in the Landscape*, 2017) also recommends that where two or more developments are in close proximity to one another, turbines of a

similar size and type should be used. The use of significantly different turbine sizes within a single windfarm or between two windfarms in close proximity can otherwise lead to adverse visual and scale effects which increase the appearance of clutter, or create odd perspectives when seen from certain viewpoints.

2.3 Turbine Design

Variations in size aside, the design of wind turbines can vary considerably. This is particularly the case with smaller turbines under ca. 50m in height. The main variations affecting appearance of wind turbines are:

- two or three bladed
- solid or lattice tower
- shape/ size of nacelle
- proportion of blade length to tower height
- hub faces into or away from the wind direction
- colour

Other factors such as tower and blade shape tend to be more subtle but in combination can lead to a significant difference in appearance, as the difference between the two turbines below demonstrates:

Enercon and Siemens turbines have different nacelles, blades and towers leading to significant differences in appearance

Colour is an issue that is a more important variable in smaller turbines. Colour choice for larger commercial turbines has settled on a neutral light grey with slight variations in lighter or darker shade between developments. It is generally agreed that this colour range is most likely to reduce the prominence of turbines when seen under the most prevalent atmospheric conditions.

In the case of smaller turbines there is more variation in colour and more likelihood of being seen against land rather than sky. In particular many small turbines are white, which increases their prominence when seen from a distance, particularly seen against land.

Choices of turbine design, including colour, are of potential significance when considering the effects of individual turbines or wider cumulative effects on the landscape.

A 47m high turbine seen from several kilometres distance reflects the evening light, contrasting with the dark backdrop of trees and grassland

2.4 Windfarm Size

There is no current ‘accepted’ classification of commercial windfarm sizes in Northern Ireland of the wider UK. Existing and proposed onshore wind energy developments vary in turbine numbers and turbine sizes; from single small turbines to over 200 large turbines. Individual turbines vary in size from below 15m to more than 150m, with maximum outputs from a few kW to greater than 3MW.

Wind energy development in Fermanagh and Omagh covers the whole range of common turbines sizes seen in domestic and commercial schemes, although development sizes are smaller than the larger commercial schemes found, for example, in Scotland. The largest consented schemes within the Local Authority area consist of approximately 20 turbines within the 120 – 150m height category, and there are various small windfarms with turbines of the 80 – 120m range. Consents for single and small turbine groups up to this ‘large’ size category are found throughout the Local Authority area.

2.5 Turbine Numbers and Landscape Impacts

Wind turbines considered out of their landscape context are usually simple, aerodynamic and functional structures that many consider to have a clear aesthetic of ‘form following

function' in their design. Landscape and visual impact issues relate primarily to their scale and potential incongruity in a landscape rather than to the aesthetics of the turbine design. In this case, the number of turbines in a wind energy development has a bearing on the visual image of the development that extends well beyond the proportion of a landscape area that is covered:

- Small clusters of turbines still express the aesthetics of the individual turbines and the blade movement of each turbine is discernible. The cluster is seen as a discrete item within a landscape, becoming a significant feature but generally not dominating or changing the character of a large area.
- In large groupings of turbines there is area coverage of the landscape, rather than a discrete grouping. The individual turbines usually become lost in a mass, blade movements are perceived across the whole area and there is a more 'cluttered' appearance.
- As turbine numbers increase it is increasingly difficult to design a wind energy development such that overlap and clustered alignments are avoided when seen from surrounding viewpoints. Design mitigation can become a matter of avoiding excessive clutter, skylining and proximity to sensitive receptors rather than creating aesthetically balanced groupings of individual turbines. However the windfarm can be broken up into groups, each relating to their surroundings and appearing overall as more than one windfarm, as is the case with Clyde windfarm.

It is recognised that these qualities grade into one another depending on the exact size of development (e.g. 3, 6, 12, 20, 50, 100+ turbines) and on how the turbines are grouped (e.g. in mass groupings or in lines along ridges). Nevertheless, to the extent that they are more easily contained and definable, smaller windfarms would have a disproportionately lesser influence on the landscape than large windfarms and are less likely to dominate areas and blur boundaries between landscape types.

In small groupings, odd numbers of turbines (i.e. 1, 3 or 5) usually present a more balanced composition than even numbers, unless there is a strong regular pattern or line in the landscape to which the turbines can be related.

The landscape area of Fermanagh and Omagh can be described as a lowland landscape interspersed by elevated plateaus and fringed by uplands. Windfarm development to date has occurred in many of these more elevated plateaus, being generally of lower sensitivity than the more truly upland landscapes. However, the capacity of these areas is limited by their relatively small extent, and further development pressure could result in the coalescence of various small to medium schemes into extensive 'windfarm landscapes', apparently overwhelming these areas.

2.6 Turbine Layout

Another factor to be considered is the layout of turbines within a windfarm. Whilst the optimum layout, including turbine separation distances and position in relation to the prevailing wind will relate to maximising output, there will be other practicalities. Thus turbine layout may vary according to turbine numbers, the availability of land, topography, access and numerous environmental constraints. Once these factors have been taken into consideration the overall aesthetic of the windfarm can be considered.

Layouts will relate to landforms and patterns in the landscape as well as the need to present a coherent image from the surrounding viewpoints. Thus in lowland landscapes with a strong geometric pattern the turbines may be organised in lines of a grid, whereas in the case of a distinct landform such as a ridge or coastline they may be arranged in a curved line following the landform. In upland landscapes turbines may be arranged in a more organic pattern, following ridgelines or clustered around rounded hilltops. Attention should be paid to the relationship of outer turbines in large groups ensuring that there are no 'outliers' creating an untidy or disorganised appearance.

When two or more developments are in close proximity or a windfarm is being expanded there can be cumulative issues relating to site layout if these are clearly contrasting (e.g. a geometric layout adjacent to an organic layout). Such developments should be designed to achieve a harmonious layout and relationship.

2.7 Windfarm and Turbine Distribution

2.7.1 Pattern of Development

When considering cumulative impacts of turbines and windfarms it is not just the number of turbines in the landscape that affects impacts but also the pattern of development. This has an effect on the ability of the landscape to absorb change and on visual receptors. The dispersal of the turbines in small groups or defined areas has some advantages in that each grouping is less dominant within the landscape and presents a less cluttered visual image. There is also less likelihood of 'swamping' landscapes and blurring the boundaries between different landscape types and features if there are distinct gaps between clusters of wind turbines. However, the increased number of windfarms or turbine clusters also means that there is an increased likelihood of seeing a windfarm or turbine, and at closer proximity than if the turbines were concentrated into fewer locations.

The trend seen in the UK, and in particular Scotland, has been for the concentration of wind turbines into fewer, larger, windfarms. This arises initially via large windfarm proposals and then through the later extension of many existing windfarms or new proposals following precedent. The pattern may also play out on a wider regional scale or 'clusters and spaces' where groups of windfarms lie within large areas separated by significant areas without turbines.

However, the cluster and space pattern described above has become diluted by the recent proliferation of smaller Renewables Obligation/ Feed in Tarrif (FiT) schemes including single turbines which relate more to the location of small scale consumers than to regional landscape patterns.

The consented pattern of development in Fermanagh and Omagh reflects both trends, with larger windfarms and windfarm clusters developing in uplands from earlier windfarm

developments and frequent smaller wind turbine developments in the lowlands and lowland fringes, with both broad wind energy typologies in view together.

2.7.2 Separation Distances between Turbines and Windfarms

Separation distance between turbines and windfarms has a bearing on how they are perceived together and within the landscape, particularly in relation to defining the limits of cumulative development. Whilst a clear visual separation between two or more windfarms may be achieved by a certain physical distance, this distance would depend on the size and number of the turbines or windfarms, the type of landscape(s) in which they are located and the degree to which they affect the character of the landscape.

Considering this in simple terms, turbines have both a direct effect on the landscape in which they lie and an indirect effect on the surrounding area. Therefore, although two turbines or windfarms may be separated by some distance and seen as clearly separate, the landscape in which they lie may be considered to be characterised by turbines. Only when separated beyond a certain distance would the intervening landscape be considered to retain its original character, separating the two landscapes areas affected by turbines.

Table 2.1 in Chapter 2 of this report develops this concept further by considering the effects of multiple wind energy developments and describes cumulative development thresholds. Further to a capacity assessment, an acceptable level of development within a landscape area may be agreed (e.g. *Landscape with Occasional Wind Turbines* or *Wind Turbine Landscape*). The capacity for development would then be utilised by a developing the accepted landscape type through a combination of turbine sizes, windfarm sizes and separation distances between groupings, relating to the scale and character of the landscape and of course the physical area which it occupies. As examples:

- A large scale upland plateau landscape accommodating a number of windfarms would be considered a *Wind Turbine Landscape* if the windfarms are large, the topography is subordinate in scale to the turbines and the windfarms are separated by distances less than their typical extents.
- If the topography has a relief that is clearly greater than the turbine heights, and/or the windfarms are smaller and the separation between the windfarms is clearly greater than their extents, the landscape may be considered a *Landscape with Wind Turbines*.
- A lowland landscape, smaller in scale with many small scale reference features, may easily be dominated by wind turbines. In this case the objective may be to limit development to a *Landscape with Occasional Wind Turbines* by allowing only small clusters of smaller turbines separated by substantial distances and with cumulative visibility reduced by localised tree or landform screening.

In each case different scales and patterns of landscape and development would require different turbine sizes, groupings and separation distances to lead to a particular windfarm landscape type. Such an approach has been adopted in this study and sizes and separation distances are recommended and explained in chapter 6.

2.7.3 Distribution in Relation to Landscape Type

As discussed above, some landscape types have less capacity for wind energy development than others. In this case it would be appropriate to consider the relative merits of guiding development to those areas most capable of accommodating development, or to directing different types and scales of development to the areas most suited to each. Subject to the specific impacts of any particular proposal, this would reduce the potential for the most significant and adverse landscape impacts. It would also restrict the wind turbine landscape typologies to a more narrowly defined range of landscapes, thereby reducing the perception of unplanned proliferation of wind farms throughout a local authority area.

In Fermanagh and Omagh, operational and consented developments consisting of medium to large and large turbines have largely been located in the moderately elevated upland plateaus, but also on some higher upland hills such as Bessy Bell and Slieve Rushen, with medium sized wind farms. So far, the true upland landscapes of South Sperrin and Cuilcagh have been unaffected by wind energy developments, although at the time of writing there is a significant wind farm proposal within the AONB of South Sperrin within the Local Authority area.

Generally speaking wind energy development is more intense towards the north east of the Local Authority Area in comparison to the south for all types of wind energy development, reflecting the sensitivities of the Fermanagh lakelands and karst landscapes. Most lowland pastoral landscapes have a degree of wind energy development, typically up to the medium typology of wind turbine (50 <80m), and these smaller scale turbines, often in small groups, are found in the upland plateau landscapes and in close proximity to the larger scale windfarm developments. This merging of wind energy typologies has the potential to result in significant cumulative issues if the pattern of development appears incoherent and overly complex.

In strategic terms the established and evolving pattern of development should be taken into consideration as it reflects a clear rationale driven partly by landscape, visual and amenity issues (sensitive or valuable landscapes, proximity to settlements and recreational areas) and partly by technical issues (available land, available grid capacity, wind speed, etc). The number, size and distribution of further development should be considered very carefully in order to maintain differences in character between the uplands, the lowland hills, the lough and lowland farming landscapes.

Also, in accordance with SNH guidance *Spatial Planning for Wind Turbines – Natural Heritage Considerations* (SNH, 2015), consideration should be given to identifying areas between development clusters in which no development is yet located or consented. These can provide significant gaps between clusters of wind turbines in which their visual influence is minimal. This again will reinforce distinctiveness between landscapes.

2.8 Very Large Wind Turbines

2.8.1 Introduction

The landscape capacity considers the potential for the landscape of Fermanagh and Omagh to accommodate wind turbines of 'very large' size, meaning turbines in excess of 150m tall, based on the growing trend for ever larger wind turbine developments seen in other parts of the UK and particularly Scotland. No specific published guidance exists for 'very large' onshore wind turbines exists, the principles which apply to smaller commercial wind turbines also relevant to larges machines sizes. However, the following outlines some of the key considerations relevant to the introduction 'very large' turbines into the landscape as new wind farm developments or as extensions to or repowering of existing wind farms.

2.8.2 Matters Associated with Size and Scale

There are several key criteria associated with the perception and siting of wind turbines in the landscape, of which the relationship between the size of turbines and the scale of the landscape is a primary consideration. Scale is expressed in both horizontal and vertical dimensions of the landscape itself, but also secondarily in the form of other landscape elements such as trees and houses, often referred to as scale indicators.

Scale in this sense does not refer to a definitive measurement but more to a perception of size, particularly the comparative size between elements. While size can be objectively measured, perceptions of scale are subject to the distance over which objects are seen, and to comparison with other known objects. Two concepts relevant to the perception of scale are:

Relative size, in which the size of an object can be determined by comparison with the size of familiar objects within its visual context.

Size constancy, in which the scale of a familiar object is understood when seen within a certain range of distances from the viewer, because of prior knowledge of its size. Size constancy can also allow distances to be determined.

Horner and McLennan[19] emphasise the importance of visual scale and comparison of objects.

"Visual scale refers not to the actual dimensions of things, but rather to how small or large something appears to be in relation to its normal size or to the size of other things in its context"

They also highlight *proportion*, the proper or harmonious relation of one part to another or to the whole. A proportioning system establishes a consistent set of visual relationships between the parts of a feature, as well as between the parts and the whole:

"Although these relationships may not be immediately perceived by the casual observer, the visual order they create can be sensed, accepted, or even recognised through a series of repetitive experiences".

However, perception can also be confused when visual clues do not conform with expectations. It is much more difficult to determine the distance or size of an object when there are no familiar scale references and landforms are simple, giving few clues for assessing distance. At the extreme, there are several simple optical illusions such as the Ebbinghaus Illusion and the Ponzo Illusion (see Fig. 2.1) which use visual clues to confuse assumptions about scale and distance.

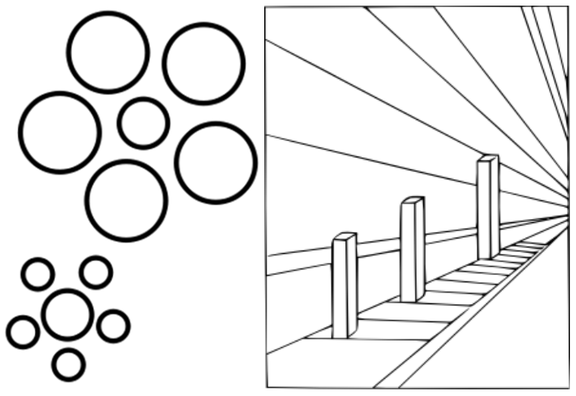


Figure 2.1: In the two images above, the middle circles and the posts are the same size, but the use of visual clues (smaller and larger surrounding circles and perspective lines) makes them look a different size

Taking the above considerations into account; the generally accepted rule is that large wind turbines are more suited to larger scale landscapes with simple, undulating or rounded landforms and patterns. This is because they will be less dominant in these surroundings and there are few or no scale reference objects allowing a perception of their true scale.

However, the matter of proportion and expectation is also increasingly important in this respect, as the height of turbines and the lateral extent of windfarms increasingly approaches the scale of the landforms and areas in or near which they could be located and has the potential to dominate their character or diminish their stature.

[19] *Designing Windfarms in the Landscape* SNH Post Consultation Workshop Presentation, 2009

2.8.3 Existing Guidance

Existing generic guidance on strategic location, siting and design of wind turbines and wind energy schemes of all scales is provided by SNH. Further specific guidance is provided by local authorities in wind energy and landscape capacity studies.

The relationship between turbine size and landscape scale is consistently a key subject in guidance. This is a matter applicable to all sizes of wind turbine, including those greater than 150m in height.

SNH's guidance covers the issues determining siting and design[20] and more strategic matters[21]. Paragraph 2.15 of the siting and design guidance refers to turbine size and scale:

'Choice of turbine size is an integral part of the design process. Identification of the key landscape characteristics, their sensitivity and capacity to accommodate change will inform this. Generally speaking, large wind turbines will appear out of scale and visually dominant in lowland, settled, or smaller-scale landscapes, which are often characterised by the relatively 'human scale' of buildings and features. They are best suited to more extensive, upland areas, and set back from more sensitive upland fringes'.

And in paragraph 3.31:

'Landscape scale and openness are particularly important characteristics in relation to wind turbines because large wind turbines can easily seem to dominate some landscapes. For this reason, landscape scale can dictate the ability of an area to accommodate wind farm development, both horizontally and vertically'

The guidance also covers aviation lighting, describing the requirement for turbines of 150m or greater, stating:

'…effects are likely to be more significant in areas with less artificial lighting, including remoter rural locations, Wild Land Areas and dark sky sites where the absence of artificial lighting contributes to the feeling of remoteness or the direct appreciation of the night sky. Lit turbines may lessen the contrast between developed and undeveloped areas, e.g. when viewed from nearby settlements'

The FODC capacity study and guidance is based on the 26 landscape character areas of the local authority. A detailed analysis of each area is carried out based on landscape character, visual sensitivity and landscape value; in which several criteria such as scale, landform, visibility, designations and perceptual aspects are assessed to determine overall sensitivity.

Broadly speaking, capacity for wind energy developments of different scales is related to sensitivity, with areas of lower sensitivity usually considered to have a higher capacity. The analysis considers capacity in terms of the size of wind turbines. This is strongly related to scale, landform and landscape pattern.

The capacity study indicates the underlying capacity in each LCA for different wind turbine size categories, shown in the form of analysis tables (Table 6.1(i - vii)) and capacity maps (Figures 6.1 (a – f). Guidelines on siting and design of wind energy schemes are provided in the tables and text.

The assessment also considers the local authority area as a whole. Sections 6.4 and 6.5 identify strategic areas in which cumulative development is considered to have reached capacity; areas which are not suitable for wind energy development of any significant scale and areas in which capacity for wind energy development remains.

2.8.4 Landscape and Visual Considerations

It is unlikely that the largest modern turbines can be accommodated in most locations without contemplating some level of change in character of the landscape. This guidance is therefore considered in terms of (a) the effects on the landscape; and (b) the appropriate levels of landscape change to be accommodated. The basic choices are expressed as in the landscape capacity assessment as follows:

- **Landscape Protection:** Maintain existing landscape character.
- **Landscape Accommodation:** Accept a degree of change providing this does not fundamentally alter key landscape characteristics and visual resources.
- **Landscape Change:** Accept large amounts of change that may fundamentally alter key landscape characteristics and visual resources.

This guidance seeks to highlight the key issues associated with larger turbines. The following matters are considered to be the most critical:

- Horizontal and Vertical scale
- Aviation Lighting
- Extensions and siting near smaller turbines
- Replacing smaller turbines with larger turbines, i.e. Repowering

2.8.5 Horizontal and Vertical Scale

As discussed in above, the concept of *relative size* argues that the scale of an object is not a matter of absolute size, but how objects are perceived relative to other objects or features in their context. Furthermore, the proportional relationship between the scale of a turbine/

[20] *Siting and Designing Windfarms in the Landscape*, v3 Feb 2017, SNH

[21] *Spatial Planning for Onshore Wind Turbines – natural heritage considerations: Guidance,* 2015 SNH

windfarm and its landscape setting is an important consideration in how the landscape or view may be perceived.

Large turbines will be best suited to landscape types of the largest scale, with gradual slopes, indistinct landforms, simple patterns and few or no smaller scale elements or features.

An extensive horizontal scale is perhaps the most important consideration: both in terms of absolute area and in the sense of scale engendered by the delineation of landforms or land use patterns such as field boundaries and blocks of trees. An extensive area of land will be more able to accommodate a large wind energy scheme without being dominated and can have 'strategic depth' in which larger turbines can be set back from the edge of an area or from a sensitive visual receptor. Large horizontal scale landforms and patterns will help accommodate large turbines by diminishing their apparent scale.

Estinnes Windpark, Belgium. The turbines are 198m tall but difficult to scale accurately due to the large horizontal scale and indistinct landform

A large vertical scale may help to accommodate large turbines by diminishing their apparent scale. Higher landforms in combination with topographic hollows or screening 'dead ground' may also be able to fully or partly screen the turbines. However, the landform will need to be considerably greater than the turbine size in order that the turbines do not diminish the perceived stature of the landform[22].

Flat or gently undulating landscapes without distinctive landforms provide a less ready scale indicator to a turbine than would a distinctive hill or escarpment. Furthermore, it is more difficult to judge distance in such landscapes.

Scale indicators within a landscape, such as houses, trees, roads and electricity lines, can provide a means by which the scale of wind turbines and/or their distance from the viewer can be assessed. Open or uniformly covered landscapes with few such references would be more able to accommodate larger turbines. It is however the case that, once a turbine is more than a certain number of times larger than a familiar scale indicator in the landscape, it becomes difficult to compare the two objects meaningfully. Thus, where there are relatively few houses or trees seen at distance over a relatively flat landscape, they may not prove to be a clear scale indicator.

Hoprigshiels (3x115m) and Ferneylea (2x76m) turbines in Scottish Borders: Scale indicators in the landscape including tree belts and fields allow the relative scales and positions of the turbines to be understood

Overhead electricity transmission lines with lattice towers, typically ca. 25-55m tall, are intermediate in size between houses/trees and commercial wind turbines, and can provide a ready scale reference for turbines. This is especially so if the line passes from a receptor location into the windfarm, providing visual clues through perspective. Consideration should be given to avoiding siting large turbines near electricity lines and vice-versa. Undergrounding of transmission lines associated with schemes should be considered, preferably to a location well beyond the turbines.

2.8.6 Aviation Lighting

The effects of aviation warning lighting for wind turbines is becoming an increasingly frequent consideration as wind turbines increase in size. The assessment of effects, including visual representation[23], is a developing area.

Aviation lighting extends the landscape and visual effects of a proposed development into low light periods (i.e. night time and the periods of dawn and dusk and more exceptionally

[22] Para 3.32 of SNH's current siting and design guidance suggests that turbines should be *'of minor scale in relation to the other key features of the landscape'*.

[23] See paras 174-177 of *Visual Representation of Windfarms – Guidance* v2.2, Feb 2017, SNH

very dull daylight conditions), creating effects overlapping with and additional to those experienced in daylight.

Despite the different landscape baseline and nature of effects in low light, it is possible to define and assess both landscape and visual effects based on the characteristics of the receiving landscape or views in low light (position and character of skylines; amount, type and location of existing artificial lighting etc.), and the details of the aviation lighting (intensity, colour and number of lights, position relative to landform and other lighting etc.).

The nature of any specific baseline landscape or view will of course vary, much as in different periods of the day depending on weather conditions and time of day. Low light period variations relate to the time period and weather, e.g. dawn, dusk or full night; clear or cloudy skies; the presence or absence of moonlight and starlight; weather and visibility conditions. However, the key factor defining many low light landscapes and views is the degree to which they are affected by artificial lighting, and the characteristics and distribution of that lighting.

The potentially negative environmental effects of artificial lighting is a factor widely recognised in a number of ways. This includes the design and positioning of lighting in developments to minimise light spillage and in a wider sense the recognition of the importance of natural light at night time, particularly through the designation of Dark Sky Areas and Parks:

'An IDA International Dark Sky Park (IDSP) is a land possessing an exceptional or distinguished quality of starry nights and a nocturnal environment that is specifically protected for its scientific, natural, educational, cultural heritage, and/or public enjoyment'.[24]

Experience of existing aviation lighting on windfarms and transmission towers demonstrates that in clear conditions the lights are highly visible on clear nights at distances of 10km or more[25]. In areas with little or no background lighting the effects may therefore be significant over some distance. Furthermore, in the case of wind turbines, the rotation of blades can cause a notable blinking effect when the blades pass in front of the light and a flickering reflection effect when the light is seen in front of the blades.

It is therefore likely that in rural areas, including the settings for settlements, the type of medium intensity aviation lights required for 150m+ wind turbines would lead to significant landscape and visual effects in low light periods. These effects would be different in nature and additional to those in daylight hours. The effects should be taken into account in considering a wind energy proposal, recognising that some of the affected locations are specifically designated for their night time skies, are more generally valued for their remoteness from developed locations and artificial light or may provide a dark night-time setting for a settlement.

Craigkelly Transmitter lights seen at ca. 15km above rooftops in central Edinburgh

Potential for mitigation of aviation lighting is relatively limited. The following siting and design measures are possible but would apply in very specific circumstances:

- Use of siting, topography and trees to screen turbines to higher than hub height when seen from sensitive viewpoints.
- If the screening is not possible at the specified turbine height, consider selectively reducing the heights of the turbines that are visible at near hub height – either to below 150m or to a height where the lights would be screened.
- It is understood that light intensity can be reduced where the scheme has horizontal meteorological visibility for more than 5km in all directions26 although it is not clear how variable lighting could be operated to reliably respond to these circumstances. While this may reduce more distant effects it is unlikely to make a great deal of difference close to a scheme located in a naturally dark location.
- Radar-activated warning lights will switch on for brief periods, when approaching aircraft are within proximity, and will not be visible for the rest of the time. However,

[24] International Dark Sky Association website http://darksky.org/idsp/parks/

[25] The lights on Craigkelly Transmitter in Fife are clearly visible from central Edinburgh at 15km and Mount Eagle Transmitter on the Black Isle from the A9 at Bogbain south of Inverness at 17km.

[26] *Lighting of Onshore Wind Turbine Generators in the UK with a maximum blade tip height at or in excess of 150m Above Ground Level* SARG Policy Statement June 2017 (item 4g)

this approach is still under discussion and will require some financial investment in systems. It may also be of more limited value on busy flight paths.

2.8.7 Extensions and Siting Near Smaller Turbines

It is almost inevitable that, as turbine size increases, turbines of 150m+ will be located close to existing turbines that are considerably smaller; either as an extension windfarm or within a more crowded landscape. Erection of large turbines close to smaller turbines can make a development appear uncoordinated or unbalanced, as well as influencing the perception of distances or perspectives. The extent to which this occurs depends on the degree of size difference; the appearance of the turbines; the proximity and position of the turbines to one another; the nature of the landscape context or view and the position of the turbines relative to the viewer.

The size difference between the proposed turbines and other operational turbines in the area is the most obvious consideration. Gross size differences between turbines, such as turbines being twice the height of their neighbour are easily perceived. However, such occurrences are not common. In cases of lesser contrast, the concept of *size constancy* and many of the other controlling factors cited in 2.3 above can moderate the apparent differences between turbines.

Muirhall Windfarm, South Lanarkshire: The 6 turbines to the right are 126.5m tall. The 5 turbines to the left are 145/147m tall. The size difference is perceptible but not overt in a wide undulating landscape where it is difficult to tell distances.

In respect of appearance, there is relatively little variation between most commercial scale wind turbines. Experience also indicates that when moving around an area, the potential for differences between different scale turbines to be readily apparent is often reduced by variations in topography and landscape features within and around a windfarm site and changes in the relative position of the viewer to the turbines. However, the following specific considerations may help reduce visual disparity and contrast where proposed large turbines are to be located near existing smaller turbines:

Consistency in appearance is important in reducing the apparent contrast between two sets of turbines of any size. This includes avoiding mixing two and three bladed turbines or turbine models with very obviously different hub, blade or tower designs.

Consistency in turbine proportions is important. This may include a consistent proportion of rotor diameter to hub height when the two developments are seen together; or using similar rotor diameters on different height towers where only upper parts are likely to be seen.

Using a lower landform elevation for siting taller turbines will even out blade tip height differences, such that the combined sets of turbines will appear as a more evenly balanced composition when seen from a distance.

Placing larger turbines further away from key viewpoints than existing turbines may still lead to apparent flattening of perspective and condensing of distance, but these effects together with contrast in scale is much more exaggerated when the larger turbines are placed to the fore.

Windy Standard I and III Windfarms, Dumfries and Galloway (Photomontage): three sizes of turbine (55m, 125m and 177.5m. Seen from Blackcraig Hill the differences in size are clear

Windy Standard III Windfarm (Photomontage): the closer turbines are 125m and those further away 177.5m. Seen from Cairnsmore of Carsphairn the difference in size is not apparent due to the similar proportions of the turbines and the lower ground elevation of the taller turbines

Larger windfarms are more able to 'absorb' different size turbines due to the differences in vertical scale becoming a secondary consideration to the broad horizontal scale occupied and the greater visual confusion engendered by large numbers of turbines.

Calder Water and Whitelee Windfarms, South Lanarkshire: The more distant turbines are 110m tall. The closer turbines are 145m tall. The size difference is perceptible but not overt due to the sheer number of turbines.

2.8.8 Repowering

Repowering of existing windfarms that currently have relatively small turbines is becoming a more relevant consideration as the oldest windfarms approach their consented operational lifetime. It is likely that some of these sites will propose to be repowered with turbines of 150m or greater height. In this case, all the generic considerations of scale, lighting and size contrast covered by existing published guidance, the LCS 2016 guidance and this guidance would apply.

However, it is worth considering specific situations which may arise where the effects, adverse or beneficial, of repowering with significantly larger turbines can be notable:

- Replacing many small turbines with fewer, larger turbines can present a simpler, less cluttered appearance
- Large turbine blades rotate more slowly than smaller turbine blades, presenting a less busy, less cluttered appearance
- Spacing between larger turbines is greater than between smaller turbines, which also reduces clutter but may mean more area is required to accommodate a windfarm
- Larger turbines will have a wider visibility and will, for most visibility conditions, be more prominent when seen at distance
- Aviation lighting will be required, leading to effects in low light

Larger turbines require larger scale infrastructure, including access/ delivery roads and crane platforms, leading to direct and permanent effects of a greater magnitude. This is particularly the case where steeper ground which would require larger cuttings and embankments to maintain appropriate road gradients and geometry.

APPENDIX 3: WIND FARMS AND TURBINES IN FERMANAGH AND OMAGH

All turbines > 80m in height and groups of 3 or more turbines >50m turbines, ordered by turbine size.

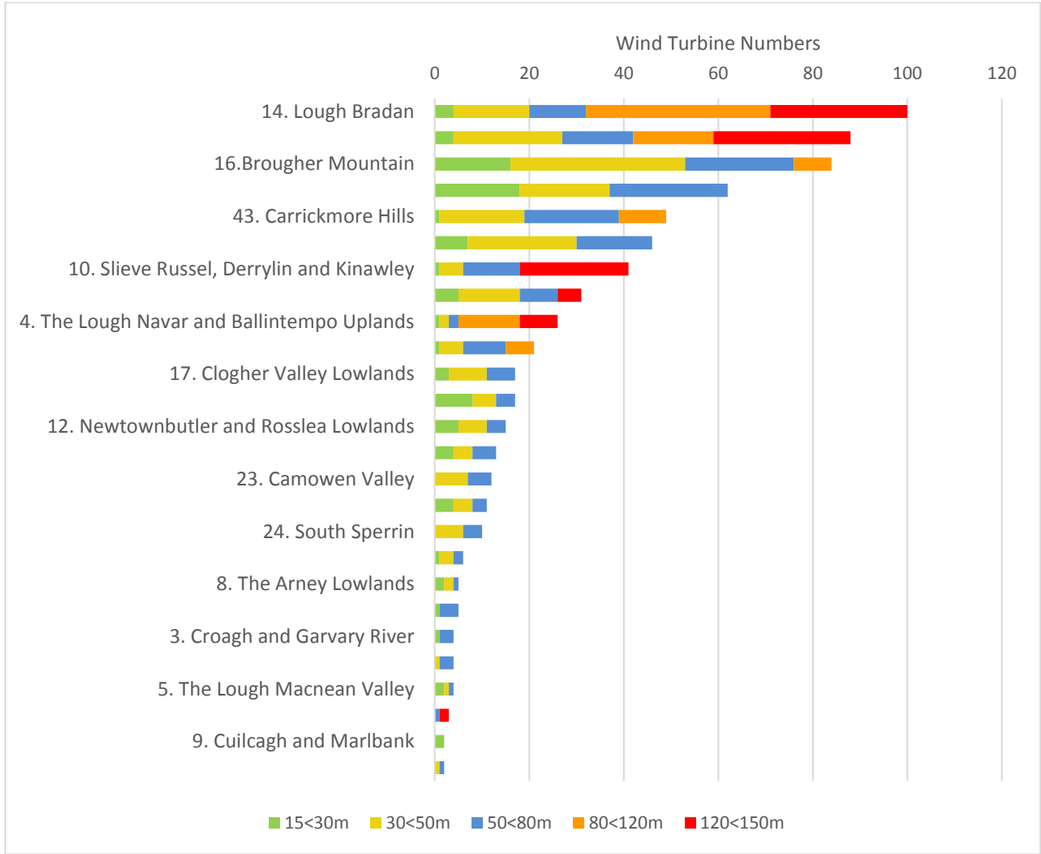
Consented and Operational Turbine Developments in Fermanagh and Omagh

Turbine Name	Number of Turbines	Tip Height (m)	Landscape Character Type
Castlecraig Windfarm, Drumquin	10	127	14 Lough Bradan
Crockbaravally Wind farm, Sixmilecross	3	127	44 Slievemore
Cornavarrow	9	126	14 Lough Bradan
Molly Mountain, Derrylin	5	125	10 Slieve Russel, Derrylin and Kinawley
Slieve Rushen, Derrylin	18	125	10 Slieve Russel, Derrylin and Kinawley
Pollnalaght	12	125	14 Lough Bradan
Killycreen East and Killycreen West near Belcoo	2	125	4 The Lough Navar and Ballintempo Uplands
Ora More Hill, Boho and Belcoo	6	125	4 The Lough Navar and Ballintempo Uplands
Crockagarron, Ballygawley	7	125	44 Slievemore
Gortfinbar	5	125	44 Slievemore
Slieve Divena & k/05/1691/F	12	125	44 Slievemore
Inishative Road, Sixmilecross	6	120.5	44 Slievemore
Teiges Mountain, Brookeborough	5	120	18 Slieve Beagh
Thornog, Drumquin	4	110.5	14 Lough Bradan
Altamuskan, Sixmilecross	3	110.5	44 Slievemore
Hunter Hill, Fintona	8	101	16 Brougher Mountain
Loughmallon Road, Cregganconroe	5	101	43 Carrickmore Hills
Clunahill, Drumquin	6	100	14 Lough Bradan
Tappaghan Mountain, Lack	19	100	14 Lough Bradan
Bessy Bell 2	6	100	26 Bessy Bell and Gortin
Crockdun	5	100	43 Carrickmore Hills
Callagheen, Belleek	13	93	4 The Lough Navar and Ballintempo Uplands
"Lands 411m North East of 180 Cloghfin Road	1	88.5	44 Slievemore
"Lands 540m south east of 180 Cloghfin Road	1	88.5	44 Slievemore
Lough Hill, Drumquin	6	83	14 Lough Bradan
Crockanboy Road, Greencastle	3	72	15 Lough Bradan

Proposed Turbine Developments Fermanagh and Omagh (All turbines sizes)

Turbine Name	Number of Turbines	Tip Height (m)	Landscape Character Area
Dorvilee Wind Farm	33	149	24 South Sperrin
Lands 538m West of 3 College Road East Doon, Derrylin, BT92 9DE	1	70	10 Slieve Russel, Derrylin and Kinawley
Lands 290m North West of 103 Scallen Road Coolback Irvinestown	1	56	15 Irvinestown Farmland
Approx 300mSW of 102 Killyliss Road Tonnagh-more Fintona	1	60	15 Irvinestown Farmland
Approx 420m South of 27 Barnaghs Road Inishative Omagh	1	70	44 Slievemore
50m south of 72 Ballyconnell Road Derrylea Derrylin	1	74	10 Slieve Russel, Derrylin and Kinawley

Distribution of Consented Wind Turbines by Landscape Character Area (All Sizes)



APPENDIX 4: ASSESSMENT OF LANDSCAPE SENSTIVITY FOR LANDSCAPE CHARACTER AREAS

1. The Garrison Lowlands

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium. Small scale features such as small enclosed pastures, properties and farms, but with some larger elements of commercial forestry. Wider landscape context is quite expansive. **Medium**
Landform	Landform is undramatic, rising from Lough Melvin in the west to elongated rounded ridges towards the centre of the LCA. **Low/ Medium**
Pattern	Landscape is dominated by small scale irregular enclosed fields of pasture, with occasional mosses and areas of coniferous forestry. **Medium/ High**
Development	Numerous single properties or small property groups. Garrison is the only settlement of any size. Consented wind energy is limited, typically of occasional single turbines around 50m height. The larger scale windfarm at Callagheen lies just to the east of the LCA. **Medium/ High**
Quality	Landscape has a defined rural character, unaffected by larger scale uncharacteristic development types. Farmland is of relatively low-quality pasture, but is managed and in productive use. **Medium**
Elements and Features	Principle features are small irregular enclosed fields, hedgerows, small woodland blocks, scattered properties and small hamlets, traversed by a network of minor roads and tracks. **Medium/ High**
Context	Landscape provides part of the setting to Lough Melvin immediately south of the LCA and transition to the Lough Navar Forest uplands. **Medium/ High**
OVERALL RATING	**Medium/ High**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Various residential receptors throughout the LCA, Ulster Way which passes through the northern part of the LCA. NCN 91 passes through the LCA. **Medium/ High**
Internal Visibility	Internal visibility in places restricted by woodland and trees, but from more elevated locations the sloping topography allows views expansive view to the west across Lough Melvin to the uplands of County Leitrim. **Medium**
External Visibility	Inward views are available from the west of Lough Melvin and from Lough Melvin itself, which has notable tourism and recreation interest, for example fishing and boating. **Medium/ High**
OVERALL RATING	**Medium/ High**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Encompassed entirely by the ASQ identified in NILCA2000. The scenic qualities of Lough Melvin are recognised through Irish Republic landscape designation. Lough Melvin shores are ASSI/ SAC. **Medium/ High**
Community value	Various recreational opportunities (cycling, water based), some tourism and recreation interest at Garrison including caravan park, holiday centre. **Medium**
Cultural value	Small number of Scheduled Monuments. **Medium**
Perceptual	Quite open landscape with sweeping views across to rugged uplands to the west, forming the immediate hinterland to the scenic Lough Melvin. **Medium/ High**
Rarity	As a relatively small-scale pastoral landscape the LCA is not rare. **Low/ Medium**
OVERALL RATING	**Medium/ High**

2. Lower Lough Erne

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium - Large. The extensive water body of Lower Lough Erne dominates this LCA, but with an intricate fringe of small islands, bays and small-scale farmland. **Low/ Medium**
Landform	Low, elongated islands and promontories around the northern fringes of the lough, however the Magho cliffs rise dramatically from the lough forming part of the southern boundary to the character area. **Medium**
Pattern	Pattern of small scale enclosed farmland, small woods and wooded islands as features of the larger lough basin. **Medium**
Development	Small scale farms, single properties, with the small town of Belleek at the far western end of the LCA the only sizable settlement. **Medium/ High**
Quality	Appearance of a well maintained and managed landscape with a strong character. **Medium/ High**
Elements and Features	Lower Lough Erne and Cliffs of Magho are the principle large scale features, with smaller scale wooded islands, promontories and small-scale fields and farmland. **Medium/ High**
Context	The landscape is a medium - large scale lough basin lying between the uplands landscape of Lough Navar Forest to the south and Pettigoe Plateau to the north (identified as ASQ). **Medium/ High**
OVERALL RATING	**Medium/ High**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Various receptors in residential properties, road users, recreational receptors (boating, fishing, walkers). **Medium/ High**
Internal Visibility	Expansive views across Lower Lough Erne, but enclosed by vegetation inland. **High**
External Visibility	Inward views available from recognised viewpoints at the Cliffs of Magho. **Medium/ High**
OVERALL RATING	**High**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Islands of Lower Lough Erne are within CPA, some islands ASSI. Castlecaldwell is LNR and designated Historic Park and Garden. Cliffs of Magho, Castlecaldwell and other areas are within the Geopark. **Medium/ High**
Community value	Important to the setting of various homes and small communities. Landscape provides various opportunities for recreation, tourism, boating, fishing etc. **Medium/ High**
Cultural value	Castlecaldwell is a Historic Park and Garden, and various cultural heritage sites are located on Boa Island. **Medium/ High**
Perceptual	Open landscape with high scenic qualities, defined character, expansive waterbody with large skies reflecting from water body. **Medium/ High**
Rarity	Recognised as distinctive part of the wider Northern Ireland landscape. **Medium/ High**
OVERALL RATING	**Medium/ High**

3. Croagh and Garvary River

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium - Large. Slightly elevated, expansive plateau. **Low/ Medium**
Landform	Low plateau but with rounded hills, rocky knolls and small loughs. Croagh hill (180m AOD) is a notable feature, seen with the higher Bressy Hill behind in Donegal**. Medium/ High**
Pattern	Much of the area is of uniform blanket bog, however the lower slopes near Lower Lough Erne and the Croagh Valley are of enclosed pastures. Some large areas of coniferous planting. **Medium**
Development	Development limited to small farms and houses on the lower slopes and Groagh valley. A small network of minor roads and tracks cross the LCA. A small number of consented 50m turbines are within the LCA. **Low/ Medium**
Quality	Farmed land is principally of rough pasture, blanket bog areas area of simple, uniform character, unaffected by development. **Medium/ High**
Elements and Features	Small houses and farm buildings, some areas of large coniferous planting. At the larger scale Croagh is the main landscape feature. **Low/ Medium**
Context	The LCA forms part of the setting to Lower Lough Erne. **Medium/ High**
OVERALL RATING	**Medium**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Residents scattered through parts of the LCA. NCN 91 and the Ulster Way pass through the LCA. Large parts have few or no visual receptors. **Low/ Medium**
Internal Visibility	Variable landform and vegetation tends to restrict outward views, but some available across Lower Lough Erne and to Cliffs of Magho. **Low/ Medium**
External Visibility	The landscape is important in views north across Lower Lough Erne where is forms part of the setting to the lough. **Medium/ High**
OVERALL RATING	**Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Area is identified as an ASQ. Much of the area is SAC/ SPA/ RAMSAR/ ASSI. Part designated as Geopark. **Medium/ High**
Community value	Some usage for walking and cycling. **Low/ Medium**
Cultural value	Sites of designated cultural heritage value within the LCA. **Medium**
Perceptual	The LCA is perceived largely as a simple upland landscape, contrasting with the more pastoral lowland, extending across to Donegal. **Medium/ High**
Rarity	Landscape is not unusual or unique. **Medium Sensitivity**
OVERALL RATING	**Medium/ High**

4. Lough Navar and Ballintempo Uplands

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium – Large. A relatively large-scale forested upland plateau. **Low/ Medium**
Landform	Landform varies between 150 and 300m AOD on an undulating plateau with a varied landform included rounded hills, rock pinnacles and ridges. To the north is the steep escarpment of the Cliffs of Magho. **Medium/ High**
Pattern	Coniferous forestry is the dominant land cover but areas of un-forested blanket bog and enclosed pastures in more sheltered and lower lying areas add some diversity to the landscape pattern. **Low/ Medium**
Development	Very sparsely developed with small houses and farm buildings linked by minor roads and tracks. The area includes 2 windfarms; at Callagheen to the north west and Ora Moor to the south. **Low/ Medium**
Quality	Varied landform and undeveloped upland character, but landform features can be masked in areas of uniform forestry. Neglect in marginal farmland areas. **Medium**
Elements and Features	Landform features of pinnacles, rocky escarpments, small loughs. Forestry cover is dominant. **Medium**
Context	Landscape forms the backdrop to views from the sensitive landscapes of Lower Lough Erne and Lough Melvin. **Medium/ High**
OVERALL RATING	**Medium**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Few residents, but area is promoted for its landscape outdoor recreation, walking etc. Ulster Way. **Medium/ High**
Internal Visibility	The variable landform and screening effects of forestry tends to limit internal visibility. **Low/ Medium**
External Visibility	Landscape is important in views from around Lough Melvin and Lower Lough Erne, Upper and Lower Lough Macnean. **Medium/ High**.
OVERALL RATING	**Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Landscape forms the core of the Global Geopark, to which landscape contributes. Includes SAC/ SPA/ ASSI and Nature Reserve designations. **High**
Community value	Significant recreation and natural heritage interest. **High**
Cultural value	A number of designated cultural heritage sites, tombs, some folklore associations. **Medium**
Perceptual	Exposed upland landscape contrasting with the landscapes of the surrounding loughs, but a landscape modified by commercial forestry. More rugged landscape to the east has high scenic qualities. **Medium**
Rarity	Geopark designation indicates a landscape with unique qualities. **Medium/ High**
OVERALL RATING	**Medium/ High**

5. Lough Macnean Valley

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium. Upper and Lower Lough Macnean are large scale elements but landscape is characterised by smaller scale features and a varied landform. **Medium/ High**
Landform	Lough basins to Upper and Lower Lough Macnean, in places steep sided with rock scarps e.g. Hanging Rock. Becoming flatter to the east towards the Arney Lowlands. **Medium/ High**
Pattern	Interplay between varied landform with small scale landscape features, agriculture and various scales, woodland and islands creates a relatively complex landscape pattern. **Medium/ High**
Development	The small settlement of Belcoo lies between Upper and Lower Lough Macnean, elsewhere. Farms and single/ small property ground are frequent in lowlands areas, less so in more elevated areas. No major wind energy, but Ora More Hill windfarm is close to the northern boundary. Some quarrying. **Medium/ High**
Quality	Landscape integrity of the farmed landscape is varying in quality and management, with more intensely managed farms to the east. Character of the Upper Lough Macnean basin is well defined. **Medium/ High**
Elements and Features	Loughs are the dominant landscape features with enclosing escarpments and other geological features. Enclosed pastures of lowland farmland. **Medium/ High**
Context	Landscape is the setting to the scenic Upper and Lower Lough Macnean. **Medium/ High**
OVERALL RATING	**Medium/ High**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Residential receptors are frequent, also various recreational receptors. Ulster Way and NCN91 pass through the area. **Medium/ High**
Internal Visibility	Open lough basins provide visibility across the landscape from their shoreline or high points. Otherwise woodland/ vegetation tends to restrict views. **Medium**
External Visibility	Views across Lower Lough Macnean possible from parts of the Cuilcagh and Marlbank Uplands. **Medium**
OVERALL RATING	**Medium/ High**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Largely undesignated other than small areas of ASSI. **Low/ Medium**
Community value	Some local interest for recreation, fishing etc. **Medium**
Cultural value	Various scheduled sites: crannogs, cairns, tombs and ecclesiastical sites. **Medium**
Perceptual	Upper Lough Macnean has high scenic qualities, enclosed by the rugged landscape at Cuilcagh and Marlbank. Lower Lough Macnean is less scenic.. **Medium/ High**
Rarity	Recognised element of the Fermanagh Lakeland: **Medium/ High**
OVERALL RATING	**Medium**

6. The Knockmore Scarpland

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium. Complex topography serves to lessen the landscape scale across much of the character area, locally of a larger scale around Belmore Mountain. **Medium**
Landform	Rugged limestone escarpment with various geological features including cliffs, limestone pavement, gorges and narrow glens. **Medium/ High**
Pattern	Enclosed pastures at lower elevations typically give way to the steep wooded escarpment and the unenclosed Ballintempo Uplands. Land uses reflecting the underlying variable landform adds complexity. **Medium/ High**
Development	Numerous single properties and small property groups, minimal consented wind energy development. **Medium/ High**
Quality	Attractive and diverse rural/ semi-natural landscape with a well-defined character. **Medium/ High**
Elements and Features	Principle features are the steep escarpments, cliffs and rugged hills. Also includes small scale fields, settlement and woodland. There are several small loughs to the north. **Medium/ High**
Context	Landscape is the transition between the Sillees Valley/ Upper Lough Erne and the Ballintempo Uplands. **Medium**
OVERALL RATING	**Medium/ High**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Receptors are mostly residents in scatted properties throughout the LCA. **Medium**
Internal Visibility	Internal visibility is often restricted by topographic features, hedgerows or woodland, but some more extensive visibility from elevated locations. **Medium**
External Visibility	The landscape is a feature of views from lowlands immediately to the east, but generally does not have a widespread importance. **Medium**
OVERALL RATING	**Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Belmore Forest to the south is part of the Global Geopark, otherwise no other designations. **Medium**
Community value	Belmore Forest offers some recreational interest, Geopark, Pollnagollum Caves. **Medium**
Cultural value	Various scheduled sites including raths, crannogs, religious sites. **Medium**
Perceptual	Perceived as an in-tact rural landscape with natural features which enhance its scenic qualities. **Medium/ High**
Rarity	Other limestone escarpments south of Lower Lough Macnean, but not a common feature of the Fermanagh and Omagh landscape. **Medium/ High**
OVERALL RATING	**Medium**

7. The Sillees Valley

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Small - Medium. Enclosed to the east and west by the Knockmore Scarpland and a limestone ridge south of Lower Lough Erne. Small fields set within an undulating landscape of drumlines, further enclosure provided by hedgerows and small woods. **Medium/ High**
Landform	Complex landform of closely packed drumlins, larger scale escarpment and limestone ridge bound the area to the east and west. **Medium/ High**
Pattern	Landscape is almost entirely of a single pattern of irregular small-scale pastures set within the undulating landscape. Some occasional larger woodland/ forestry areas. **Medium/ High.**
Development	Numerous scatted farms and other properties throughout the LCA and several small settlements, a network of minor roads and tracks. Very little wind energy development. Some quarrying. **Medium/ High**
Quality	Mostly in productive agricultural use. **Medium**
Elements and Features	The landscape is strongly characterised by the undulating landform of drumlins, with small loughs and complex pattern of drainage. Other elements are hedgerows, small field, woodlands. **Medium**
Context	Area of distinct lowland character lying between Lower Lough Erne and Ballintempo Uplands. **Low/ Medium**
OVERALL RATING	**Medium/ High**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Various residents in properties and small settlements throughout LCA. **Medium**
Internal Visibility	Undulating landform and the screening effects of trees and woodland tend to restrict internal visibility. **Low/ Medium**
External Visibility	Some recognised views across the landscape from the upland of Lough Navar, generally,. **Medium**
OVERALL RATING	**Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	The landscape is largely undesignated with the exception of a small nature reserve and small area of Geopark both as Ross Wood. **Low/ Medium**
Community value	Limited important visitor interest associated with the landscape. Monea Castle of some visitor interest. **Medium**
Cultural value	Monea Castle is a cultural site with some visitor interest. Various scheduled sites throughout the LCA. **Medium**
Perceptual	Intact agricultural landscape of defined character. **Medium**
Rarity	No unusual or rare within the Local Authority area. **Low/ Medium**
OVERALL RATING	**Medium**

8 The Arney Lowlands

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium. Broad river valleys with wide spaces. **Medium**
Landform	wide and generally flat local undulations drumlins. **Medium**
Pattern	Majority of the landscape is farmed and therefore is of a relatively uniform pattern of small scale enclosed pastures. **Medium**
Development	Developments of single properties/ small property groups and farms connected by a network of minor road and tracks. The main A32 runs through the LCA. **Medium**
Quality	Farmed landscape is in good condition in comparison to some other similar lowland landscape areas. **Medium/ High**
Elements and Features	Woodland, hedgerows, roads and tracks, minor topographic features. Features are generally of a small scale. **Medium/ High**
Context	Area of lowland farm set within more elevated and scenic areas. **Medium**
OVERALL RATING	**Medium/ High**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Receptors are mostly residents in scatted properties throughout the LCA, or users of A32. Promoted local cycle route passes through the LCA. **Medium**
Internal Visibility	Area is generally flat which allows some long views, but with Internal visibility is in places restricted by topographic features, hedgerows or woodland. **Medium**
External Visibility	This area is visible from scenic landscapes to the south. **Medium/ High**
OVERALL RATING	**Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	No landscape designations, but includes designated raised bog. **Low/ Medium**
Community value	Landscape as community value to resident, but no particular tourism or recreational interest. **Medium**
Cultural value	Small number of scheduled sites within the LCA. **Low/ Medium**
Perceptual	No particular scenic qualities, but appears as an intact rural landscape. Views to neighbouring scenic LCAs enhance perceptual qualities. **Medium**
Rarity	Relatively commonplace rural landscape. **Low/ Medium**
OVERALL RATING	**Medium**

9 Cuilcagh and Marlbank

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Large: Large scale landscape large hills including Cuilcagh Mountain and open karst landscape. **Low/ Medium**
Landform	Highly distinctive and dramatic landscape which rises to 655m AOD. **Medium/ High**
Pattern	Variety of natural/ semi natural habitats and landcovers including blanket bog, species rich dry grassland on grassland limestone, but mostly of uniform upland appearance. Wooded areas near Florence Court. **Medium**
Development	Development is very limited apart from that associated with lowland agriculture **Medium/ High**
Quality	High quality natural/ semi natural landscape a strong landscape character derived from its combination of features. . **High**
Elements and Features	Natural features predominate, hill tops, geological features etc. Outline of Cuilcagh ridge is very distinctive. **High**
Context	Fermanagh karst landscape including Cuilcagh is one of the outstanding landscape features of Fermanagh and Omagh. **High**
OVERALL RATING	**Medium/ High**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Area is popular with walkers and visitors to Florencecourt (NT estate). Ulster Way crosses the area. **High**
Internal Visibility	Extensive visibility across the LCA from within. **High**
External Visibility	Landscape is highly visible from neighbouring LCAs to the north and east. **High**
OVERALL RATING	**High**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Much of the LCA is within the Geopark designation, includes National Nature Reserve at Crossmurrin. Florencecourt is a Registered Park and Garden. **Medium/ High**
Community value	Wide community value as recreational resource and area of natural and cultural heritage interest, Geopark visitor centre. **High**
Cultural value	Registered park and garden, various scheduled sites in the more lowland locations. **Medium/ High**
Perceptual	Perceived as a high quality scenic upland landscape unaffected by manmade development of any scale. **High**
Rarity	Unique as a landscape within Fermanagh and Omagh. **Medium/ High**
OVERALL RATING	**Medium/ High**

10 Slieve Russel, Derrylin and Kinawley

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium to High. Contrasting character between the larger scale upland landscapes of Eden More and the smaller scale lowlands. **Low/ Medium**
Landform	Relatively simple upland landscape of rounded upland and lowland hills. Slieve Russel in adjacent County Cavan rises to 403m AOD. Uplands transition to lowlands to the east. **Low/ Medium**
Pattern	Simple upland landscape which transitions to often more complex landscape responding to the underlying topography with of small pastures with fields of varying size, winding minor roads and tracks extending towards the uplands. **Medium**
Development	Small farms at lower elevations, but larger scale quarrying, communication masts and quite extensive wind energy development of medium to large scale. Slieve Rushen wind farm is a major feature of the landscape. **Low/ Medium**
Quality	Windfarm development and quarrying detract from the landscape quality in some locations. Poor quality or derelict farmland. **Low/ Medium**
Elements and Features	Manmade elements of quarrying and wind farms, communication mast at Molly Hill. Enclosed pastures on the lower slopes with hedgerows and small fields. Rounded hill tops. **Medium**
Context	LCA is at the border of the Fermanagh and Omagh area of local importance rather that important to the wider Local Authority landscape. **Medium**
OVERALL RATING	**Low/ Medium**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Residential receptors on lowlands slopes, recreational receptors from recognised viewpoints. Ulster Way and NCN 91 pass through the area. **Medium**
Internal Visibility	Variable, with long views possible from upland locations, less so from more enclosed and vegetated lowlands. **Medium**
External Visibility	Hills are distant features in views from Upper Lough Erne. **Medium**
OVERALL RATING	**Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	No landscape designations but small area of Geopark at Molly Mountain, small areas of SAC/ ASSI. **Low/ Medium**
Community value	Landscape of value to residents, some wider interest through cycle route and Ulster Way. **Medium**
Cultural value	Some designated archaeological sites. **Low/ Medium**
Perceptual	Otherwise relatively scenic landscape has been degraded by a variety of land uses including wind energy and quarrying. **Low/ Medium**
Rarity	One of the higher landscapes of Fermanagh and Omagh but not unusual or rare. **Low/ Medium**
OVERALL RATING	**Low/ Medium**

11 Upper Lough Erne/ 13 Enniskillen

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Small - Medium. Intricate landscape of small water features and low-lying drumlins with pastures. Scale increases as waterbody become more expansive north of Enniskillen. **High**
Landform	Sunken landscape of small interconnected waterbodies around rolling drumlins. Knockinny Hill to the west is a localised high point. **High**
Pattern	Complex pattern of water, small scale landforms, woodlands and pastures or varying shape and size enclosed by hedgerows. **High**
Development	Mostly small to medium scale farming and single/ small collections of residential properties, connected by minor roads/ tracks. There is a quarry at Knockinny Hill. Enniskillen lies between Upper and Lower Lough Erne and is a significant urban development, including an airport. **Medium/ High**
Quality	Landscape is of a generally good condition, managed for productive agricultural use and with a well-defined character. **Medium/ High**
Elements and Features	Low rolling drumlins, waterbodies of varying scale and shape, pastures surrounded by hedgerows. Knockinny Hill is significant topographic feature. Estates at Crom, Archdale. **Medium/ High**
Context	Context is generally of flat lowland farmland, with higher landforms at Slieve Rushden seen in the distance. Lough is often not visible, particularly when further north. **Medium**
OVERALL RATING	**Medium/ High**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Aside from residents the area is promoted for its scenic qualities and therefore has considerable tourism/ recreation interest. Ulster Way and NCN91 cross the area. Various points of visitor interest e.g. National Trust estate at Crom, Castle Archdale Country Park. **Medium/ High**
Internal Visibility	Variable, with more extensive views close to the water, while inland vegetation is restrictive. **Medium**
External Visibility	Inward views to the LCA are limited. **Low/ Medium**
OVERALL RATING	**Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Various natural heritage designations (ASSI/ SPA/ RAMSAR). Several Registered Park and Gardens including Crom, Castle Archdale, Castle Coole and Belle Isle. **Medium/ High**
Community value	Wide community value due to recreation and leisure opportunities, recognised as a landscape of importance as part of the Fermanagh Lakelands. **Medium/ High**
Cultural value	Various scheduled sites, Registers Parks and Gardens, Area of Significant Archaeological Interest around Devenish Island. **Medium/ High**
Perceptual	Natural scenic qualities of the landscape, sense of tranquillity and naturalness from the presence of the Lough. **High**
Rarity	No landscape of similar character within the Fermanagh and Omagh area. **Medium/ High**
OVERALL RATING	**Medium/ High**

12 Newtownbutler and Roslea Lowlands

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium. Relatively broad lowland landscape, but frequent drumlins and enclosed fields tends to reduce the scale. **Medium**
Landform	A generally low-lying undulating landform but rising to greater elevations to the north when transitioning to the more elevated Slieve Beagh LCA. **Medium/ High**
Pattern	Frequent drumlins influence the pattern of farming development, principally of small enclosed fields. **Medium/ High**
Development	Limited with the exception of frequent single properties and farms. Newtownbutler and Roslea are the smallest settlements. Some commercial forestry and quarries. Some main roads. **Medium**
Quality	Generally of good condition as an agricultural landscape, some scenic qualities. **Medium**
Elements and Features	Drumlins, small loughs, woodlands and pastures bounded by hedgerows. **Medium**
Context	Lowland landscape lies to the south of the hillier landscape at Slieve Beagh, but part of the wider lowland landscape extending across the border. **Low/ Medium**
OVERALL RATING	**Medium/ High**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Some visitor interest including Ulster Way, cycle routes and publicly accessible Rosslea Manor. **Medium**
Internal Visibility	Varying from open to restricted due to hedgerows and undulating landform. **Low/ Medium**
External Visibility	Not widely visible from the surrounding landscape, but features in some views from the uplands of Slieve Beagh. **Low/ Medium**
OVERALL RATING	**Low/ Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	No landscape designations, but some loughs are designated as ASSI/ RAMSAR. **Low/ Medium**
Community value	Some recreational interest and the setting to several small communities. **Medium**
Cultural value	Small number of scheduled sites, with various raths and crannogs. Rosslea is a Registered Park and Garden. **Medium**
Perceptual	Small scale intact landscape with strong rural character. **Medium**
Rarity	Of a relatively common lowland landscape type. **Low/ Medium**
OVERALL RATING	**Medium**

14 Lough Braden

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium to Large. Scale varies from smaller scale lowlands to larger scale upland landscapes of the sandstone plateau. **Low/ Medium**
Landform	Lowlands of drumlins, while the upland landscape is of undulating rounded hills. Pollnalaght rises to 292m AOD. **Medium**
Pattern	Lowlands are of enclosed pastures while uplands are of a simpler pattern of forestry and moorland. **Medium**
Development	The area is in general sparsely development, although some small settlement is found in lowland areas (Ederney and Lack). Some windfarms are present in the more upland areas.
Quality	Farmland is typically of poor quality, scrappy rush infested pasture. The more upland landscapes have some scenic quality. **Medium**
Elements and Features	Landform features of hills and drumlins, forestry, smaller enclosed pastures with hedgerows. **Medium**
Context	Provides the backdrop to views from more settled lowland landscapes to the south. **Medium**
OVERALL RATING	**Medium**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Some residential receptors, NCN91 and Ulster Way pass through the area. Recognised viewpoint at Pollnalaght. **Medium**
Internal Visibility	Some extensive views from more upland areas to the east and towards the Sperrins, less within the enclose drumlin landscape to the west. **Medium**
External Visibility	Views to the upland area from the lowlands to the east, also from higher ground at Bessy Bell and the Sperrins. **Medium**
OVERALL RATING	**Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Meenadoan NNR, ASSI, however no landscape designations. **Low/ Medium**
Community value	Limited areas of recreational interest with sections of Ulster Way and NCN91, value to residents. **Low/ Medium**
Cultural value	Some scheduled sites, Drumskinny stone circle. **Low/ Medium**
Perceptual	While lowland and upland transitional landscape if of not high quality, parts of the larger scale upland landscape have a wild and remote character. **Medium/ High**
Rarity	Of a landscape type not unusual in the Local Authority Area. **Low/ Medium**
OVERALL RATING	**Low/ Medium**

15 Irvinestown Farmland/ 22 Omagh Farmland

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Small – Medium. While the landscape types are broad and quite extensive, they comprise relatively small scale manmade and natural features. **Medium/ High**
Landform	Landscape is overall relatively flat but with drumlins of varying size and frequency. **Medium/ High**
Pattern	Small scale pattern of enclosed pastures, in places regular and geometric, elsewhere more irregular, in response the underlying landform. **Medium/ High**
Development	A number of significant settlements, in particular Irvinestown, Omagh and Drome. Some transmission lines and quarrying. **Medium**
Quality	The farming landscape is generally of good quality and managed for productive agriculture, improving to the north, some area of poorer quality in more marginal areas. **Medium/ High**
Elements and Features	Drumlins the principle natural feature. Small fields divided by well wooded hedgerows. **Medium**
Context	Lowland farming agricultural landscapes lying between more elevated sandstone plateau, setting to main settlements. **Medium**
OVERALL RATING	**Medium/ High**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	The landscapes are frequently populated with single properties, farms and a number of settlements. Significant road corridors pass through the area. NCN 91 passes through. **Medium**
Internal Visibility	Variable, in places quite extensive views across the broad landscapes, but often curtailed by drumlins and trees/ hedgerows. **Low/ Medium**
External Visibility	Lowland farmed landscape is attractive when seen from various viewpoints located in adjacent more upland areas, but does not contribute greatly to views. **Low/ Medium**
OVERALL RATING	**Low/ Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Some natural heritage designations (SAC and ASSI), but no landscape designations with the exception of the Registered Park at Necarne. **Low/ Medium**
Community value	Productive working landscape with value to residents and but limited wider community value. **Medium**
Cultural value	Registered Park at Necarne, various scheduled sites of throughout the landscape. **Medium**
Perceptual	Robust farming landscape of good integrity and quality. **Medium**
Rarity	A common landscape character type within the Local Authority area. **Low/ Medium**
OVERALL RATING	**Medium**

16 Brougher Mountain/ 44 Slievemore

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium to Large. Varying scale from larger scale simple uplands to smaller scale enclosed landscapes of lowland character. **Low/ Medium**
Landform	Elongated sandstone ridge with numerous rounded hills and some steep valleys, lower slopes of quite complex topography with drumlins. **Medium**
Pattern	Varies from simple upland of peat moorland to more enclosed pastures in lowland areas, small loughs and forestry blocks. **Medium**
Development	Sparsely developed with the exception of some medium scale wind energy development and a small wind farm at Ledrum's Bridge. **Low/ Medium**
Quality	In many locations farmland appears to be of marginal viability and the condition of the farmed landscape is relatively low. New housing developments are of various styles with no strong vernacular. Some scenic value. **Low/ Medium**
Elements and Features	Topographic features, in particular Topped Mountain and Brougher Mountain, are notable features from lowland locations. **Medium**
Context	Provides the backdrop to views from more settled lowland landscapes to the south and the north, and also part of the wider setting to the more scenic landscape of Lough Erne. **Medium**
OVERALL RATING	**Medium**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Visual receptors are typically residents. Cycle route traverses the northern boundary of the LCA. **Low/ Medium**
Internal Visibility	Some extensive views are available across the farmed lowlands from high points such as Topped Mountain and other elevated locations, elsewhere topography can limit outward views. **Medium**
External Visibility	Seen as a low ridge of hills from many areas of neighbouring lowlands. **Medium**
OVERALL RATING	**Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	No landscape designations or other natural heritage designations. **Low/ Medium**
Community value	No particular community value or interest is noted. **Low/ Medium**
Cultural value	Some cultural value, including Area of Significant Archaeological Interest (ASAI) at Topped Mountain and various scheduled sites throughout the LCA. **Medium**
Perceptual	Ridge of low hills of varying quality but with some scenic qualities in areas of more defined upland character. Provides the backdrop to views from more settled lowland landscapes to the south. **Medium**
Rarity	One of a number of similar upland landscapes within the Local Authority area. **Low/ Medium**
OVERALL RATING	**Low/ Medium**

17 Clogher Valley Lowlands

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Small – Medium. General a small-scale landscape of lowland farming, characterised by numerous small rounded drumlins. **Medium/ High**
Landform	Small rounded drumlins throughout the area. The LCA is low lying, typically not extending above 100m AOD. **Medium/ High**
Pattern	Complex pattern of enclosed pastures, small woodlands and scrub, loughs with areas of parkland at Colebrooke. **Medium/ High**
Development	Mostly typical of that associated with small scale lowland agricultural landscapes; small properties and farms, some small settlement. Network of A class and local roads. Relatively little wind energy development consented. Some quarrying. **Medium/ High**
Quality	Agricultural landscape is generally of good quality and in productive use. **Medium/ High**
Elements and Features	Small scale features including drumlin landforms, fields enclosed by hedgerows, some estate woodlands. **Medium/ High**
Context	Lowland farming corridor set between more upland landscapes of Brougher Mountain and Slievemore. **Medium**
OVERALL RATING	**Medium/ High**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Receptors are mostly residents and users of transport corridors. **Medium**
Internal Visibility	Variable visibility, some quite wide views from tops of drumlins and topographic features, less so in many areas where views are obscured by landform and trees. **Medium**
External Visibility	Landscape is visible in panoramic views from Topped Mountain in the neighbouring Brougher Mountain LCA, but generally of low significance to external views in. **Low/ Medium**
OVERALL RATING	**Low/ Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	No landscape designations, however Registered Parks at Tempo and Colebrooke, some ASSI designations. **Medium**
Community value	Landscape the setting to various settlements and local communities. **Medium**
Cultural value	Registered Parks at Tempo and Colebrooke, various sites of cultural heritage interest. **Medium**
Perceptual	Perceived as a small-scale lowland agricultural landscape with strong unity of character and integrity. **Medium/ High**
Rarity	One of a number of lowland farming landscapes within the Local Authority area. **Low/ Medium**
OVERALL RATING	**Medium**

18 Slieve Beagh

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium – Large. Rugged upland character of medium sized hills, but including some smaller scale features. **Low/ Medium**
Landform	Extensive area of rolling sandstone hills but with quite a complex landform. **Medium**
Pattern	Landscape is almost entirely coniferous forestry, areas of blanket bog and poor-quality rush infested pasture, some small loughs. **Low/ Medium**
Development	Mostly forestry, peat cutting plus some telecommunications masts. Network of minor roads and tracks crosses the area. Little wind energy in view. **Low/ Medium**
Quality	In upland areas farmland is often only marginally viable or derelict. Scenic qualities are generally not high, and afforestation detracts further from scenic value, however parts of the LCAs extend towards the more scenic Upper Lough Erne. **Low/ Medium**
Elements and Features	Complex topography with landcover of forestry and poor-quality pasture. **Medium**
Context	Landscape has importance to the backdrop to the more lowland landscape. **Medium**
OVERALL RATING	**Medium**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	With these landscape types there are generally few residents, however some recreational interest e.g. Carnmore Viewpoint, Ulster Way. Views tend to be outward to other landscape types. **Medium**
Internal Visibility	From elevated locations often extensive, however the varying landform and screening effects of forestry often limits the extent of available views. **Low/ Medium**
External Visibility	The hills for the backdrop to views from more settled lowland landscapes and important transport routes e.g. A4. **Medium/ High**
OVERALL RATING	**Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Largely undesignated, but a large part of the LCA is covered by SPA designation. **Low/ Medium**
Community value	Other than scattered residents, some value as a recreational resource, setting to Ulster Way, viewpoints. **Low/ Medium**
Cultural value	Very few culturally designated sites noted within the LCA. **Low**
Perceptual	Fragmentary land uses mean that the area does not have a strong unified identity. **Low/ Medium**
Rarity	Sandstone upland landscape not uncommon within the Local Authority area. **Low/ Medium**
OVERALL RATING	**Low/ Medium**

21 Fairy Water Valley

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Small. Small scale low lying landscapes enclosed by higher ground towards the south, becoming more open to the north. **Medium/ High**
Landform	Broad and shallow valley but with undulations and outcrops, creating and irregular landform. **Medium/ High**
Pattern	Mosaic of enclosed pastures with bogs and marsh, some coniferous plantations. **Medium**
Development	Mostly small-scale farming and some conifer plantations. The small settlement of Drumquin is located within the LCA. **Medium**
Quality	Marsh and bog mean that farmland tends to be of marginal viability and poor quality, however there are locally areas of greater quality. **Low/ Medium**
Elements and Features	Enclosed pastures, marshes, bogs and some coniferous plantations. Some minor topographic features. **Low/ Medium**
Context	Valley landscape are situated closed to more upland landscapes. **Medium**
OVERALL RATING	**Medium/ High**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Limited numbers of residential receptors, but includes the settlement of Drumquin. **Low/ Medium**
Internal Visibility	Some longer views across the valley landscape, but frequent enclosure by low landforms and vegetation. **Medium**
External Visibility	There are views into the landscape from adjacent higher ground but there are not of particular scenic value/ significance. **Low/ Medium**
OVERALL RATING	**Low/ Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	No landscape designations, but several natural heritage designations (ASSI/ SAC). **Low/ Medium**
Community value	Some local value to local community/ residents but wider interest limited. **Low/ Medium**
Cultural value	Some scheduled heritage sites within the character type, various raths etc. **Low/ Medium**
Perceptual	Landscape has an enclosed rural character and a sense of remoteness from the wider landscape because of physical enclosure by higher landforms. **Medium**
Rarity	Landscape is similar to other lowland farming landscape types within the Local Authority area. **Low/ Medium**
OVERALL RATING	**Low/ Medium**

23 Camowen Valley

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Small - Medium. Lowland landscape enclosed by larger scale hills of South Sperrin, Carrickmore Hills and Slievemore. **Medium**
Landform	Valley is broad and shallow but with rounded undulations and outcrops forming a complex landform. **Medium/ High**
Pattern	Enclosed pastures, bogs and marsh, some coniferous plantations. Complex pattern of drainage. **Medium**
Development	Mostly small-scale farming and some conifer plantations. Some small settlements. Main A505 passes through the area. **Low/ Medium**
Quality	Farmland is mostly of poorly drained marginal pasture, including man-made influences, but has some wildness of character. **Low/ Medium**
Elements and Features	Enclosed pastures, marshes, bogs and some coniferous plantations. Some minor topographic features. Camowen River is the main river, but with various others passing through the landscape **Low/ Medium**
Context	Shallow valley landscape at the foot of more upland landscapes, part of setting to AONB. **Medium**
OVERALL RATING	**Medium**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Limited numbers of residential receptors, but includes several small settlements including Drumnakilly. **Low/ Medium**
Internal Visibility	Views mostly curtailed by topography, but more elevated fringes provide longer views. **Medium**
External Visibility	Landscape is not of particular importance to inward views. **Low/ Medium**
OVERALL RATING	**Low/ Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	No landscape designations, but some natural heritage interest with ASSI/ SAC associated at Deroran bog. **Low/ Medium**
Community value	Little known interest beyond resident population. **Low/ Medium**
Cultural value	Some scheduled heritage sites within the character type, various raths etc. **Low/ Medium**
Perceptual	Landscape has a wildness of character, but also man-made influences and areas of poor quality. **Low/ Medium**
Rarity	Landscape is similar to other lowland farming landscape types within the Local Authority area. **Low/ Medium**
OVERALL RATING	**Low/ Medium**

24 South Sperrin

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium – Large. Upland landscape of east – west ridges and rounded hills separating steep sided settled valleys, valleys of smaller scale. **Low/ Medium**
Landform	Simple upland landform of ridges and hills up to approximately 500m AOD, small glens leading to narrow lowland valleys. **Medium**
Pattern	Simple upland moorland landscape with areas of coniferous forestry to the west, with a more complex lowland pastoral landscape towards the west. **Medium**
Development	The areas is largely free from development with the exception of small properties and farms in the lowland valleys to the west, including the settlement of Gorton. **Low/ Medium**
Quality	Generally, an open intact upland landscape, albeit the wildness of the more remote areas has been affected by forestry. **Medium**
Elements and Features	Major topographic features of ridges, hill tops and valleys dominate. Lesser features of gullies, enclosed pastures, narrow lanes and small farm properties. **Low/ Medium**
Context	Part of the Sperrins AONB, but less wild than the core of the Sperrins mountains to the north of the Glenelly Valley. **Medium**
OVERALL RATING	**Medium**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Various recreational receptors, traversed by national and local cycle routes, the Ulster Way. Residents in various scattered farms and small settlements. **Medium/ High**
Internal Visibility	Varies from quite enclosed views along valleys to extensive views from upland areas. **Medium**
External Visibility	Ridge tops are visible from the south of the LCA, but valleys are enclosed. The area is important in views from the upland core of the Sperrins to the north. **Medium/ High**
OVERALL RATING	**Medium/ High**

Landscape Value	Criteria/ Sensitivity Levels
Designations	AONB, a national level landscape designation, Owenkillew River SAC. **High**
Community value	Wider community value due to landscape designation, recreational interest. **Medium/ High**
Cultural value	Beltrim Castle is a Registered Park and Garden. A number of other scheduled cultural heritage sites, standing stones, raths. **Medium**
Perceptual	Mostly unspoilt landscape of upland ridges and hills, contrasting with more intimate lowland valleys. High scenic qualities. **Medium/ High**
Rarity	Only landscape of its type within the Local Authority area. One of only 9 AONBs within Northern Ireland. **High**
OVERALL RATING	**High**

25 Beaghmore Moors and March

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium. Varied landform of rolling ridges, shallow valleys and low hills but also with smaller scale lowland features. **Medium**
Landform	Landscape is varied and irregular, but features generally have smooth profiles. **Medium**
Pattern	The landscape is predominantly a lowland landscape of enclosed pastures, hedgerows and peat bog. The area includes blocks of woodland and forestry. **Medium**
Development	Sparsely settles but with some small settlements, quarries, various road and forestry. **Medium**
Quality	Farmland is not of high quality and appears at the margins of viability in places. Forestry and quarry also detract from landscape quality. **Low/ Medium**
Elements and Features	Bog one of the main landscape features. Few other features of note, main element are topographic features and those of the lowland pastoral landscape. **Low/ Medium**
Context	Landscape forms the setting to the more upland Sperrins immediately to the north. **Medium**
OVERALL RATING	**Medium**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Few residential receptors, however there is visitor interest at the An Creggan centre and some cycle paths pass through the area. **Medium**
Internal Visibility	Generally wide visibility across the landscape. **Medium/ High**
External Visibility	The LCA is visible from neighbouring upland LCAs, although is not of particular scenic importance in views. **Medium**
OVERALL RATING	**Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Most of the LCA is within the AONB. SACs at Black Bog and Owenkillew River. **High**
Community value	Value found at An Creggan and through wider interest as part of AONB, includes recreational routes. **Medium/ High**
Cultural value	A small number of cultural heritage sites, An Creggan centre highlights cultural heritage interest. **Medium/ High**
Perceptual	Some wildness of character and scenic value, reflected by the AONB designation. **Medium/ High**
Rarity	Landscape type is not common within the Local Authority area, and is within AONB. **Medium/ High**
OVERALL RATING	**Medium/ High**

26 Bessy Bell and Gortin

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium – Large. Landscape is open and generally of large scale, but has small lowland features to its centre. **Low/ Medium**
Landform	To the east there are mountainous landforms with Mullaghcarn forming the high point at 542m, to the west there is the more rounded and smaller Bessy Bell, with lowland landscapes in the Strule river valley running between. **Medium**
Pattern	Simple uplands of the hills and mountains, with extensive forestry at Gortin Glen Forest Park, contrasting with the more complex lowland landscape of the river valley. **Medium**
Development	Small settlement in the lowlands, large scale forestry. Bessy Bell wind farm is a prominent feature. **Medium**
Quality	Simple upland landscapes, albeit in parts affected by wind energy and forestry. Lowland farming landscape appear of good quality. **Medium/ High**
Elements and Features	Forested uplands, moorland hills and the pastoral river valley lowlands are the main features of this landscape. **Medium**
Context	Landscape forms the immediate setting to the Sperrins AONB. **Medium/ High**
OVERALL RATING	**Medium**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	The area is popular for recreation, with cycle paths, the Ulster Way and Gortin Glen Forest Park. **Medium/ High**
Internal Visibility	Extensive views across the character area from upland locations from a number of recognised viewpoints, hill tops visible from the lowlands. **Medium/ High**
External Visibility	Bessy Bell and other hills are landmark features as Sperrins foothills. **Medium/ High**
OVERALL RATING	**Medium/ High**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Mostly within the Sperrins AONB. **High**
Community value	Various communities with interest in the landscape – walkers, visitors, cyclists – as well as resident population. **Medium/ High**
Cultural value	Various scheduled sites are located throughout the character area. **Medium**
Perceptual	Landscape is perceived as part of the wider Sperrins upland landscape and an important 'gateway' to the Sperrins from the south, and has high scenic qualities with attractive views across the Strule Valley. **Medium/ High**
Rarity	Upland landscape is important in the context of the wider Local Authority landscape, designated as AONB. **Medium/ High**
OVERALL RATING	**High**

43 Carrickmore Hills

Landscape Character Sensitivity	Criteria /Sensitivity Levels
Scale	Medium. Landscape is at the upland fringes, but includes various smaller scale features of enclosed pastures, small loughs. **Medium**
Landform	Variable landform of low hills and more rolling lowland landscapes, but craggy crops and other landform features. **Medium/ High**
Pattern	Varies from the simple upland slopes to a more complex lowland landscape of enclosed pastures, peatland loughs and small-scale forestry. **Medium**
Development	Some quarrying, a relatively high level of wind energy development consented up to 120m, otherwise mostly development typical of lowland farming landscapes. **Medium**
Quality	Open landscape with an upland character that is largely intact. **Medium**
Elements and Features	Few distinctive features other than some complex landform features. **Low/ Medium**
Context	Forms the immediate setting to and the foothills of the Sperrins AONB. **Medium/ High**
OVERALL RATING	**Medium/ High**

Visual Sensitivity	Criteria/ Sensitivity Levels
Receptors	Some residential receptors, a local cycle route passes through the area. **Low/ Medium**
Internal Visibility	Some long views available across the relatively open landscape. **Medium**
External Visibility	Inward views not of particular significance, some available from within the AONB. **Medium**
OVERALL RATING	**Medium**

Landscape Value	Criteria/ Sensitivity Levels
Designations	Western part designated as AONB, includes Murrins Nature Reserve and ASSI. **Medium/ High**
Community value	No signs of particular community value other than as setting to resident's homes and communities. **Low/ Medium**
Cultural value	Various cultural heritage sites are located within the area such as tombs and stone circles at Creggan conroe. **Medium**
Perceptual	Some areas of higher scenic quality around the Murrins, within the AONB, other areas of less scenic value. **Medium**
Rarity	One of a number of smaller scale upland landscapes within the Local Authority area, but partly within the AONB. **Medium**
OVERALL RATING	**Medium**

APPENDIX 5: VIEWPOINT LIST

Viewpoints used for the capacity assessment are listed below, and have been selected because they are 1) recognised viewpoints for example as identified on OSNI 1: 50,000 mapping; 2) other locations where views to the landscape are likely to be of importance e.g. picnic sites, sites of visitor interest, settlement; and 3) other locations where landscape character can be observed. Viewpoint locations are shown on Figure 4.1a.

LCA	LCA	VP	Name	Reason for Inclusion	VP Coordinates (Irish National Grid)	
					Easting	Northing
Garison Lowlands	1	1	Mullanacross	General views across LCA from more elevated location	197662	352175
Garison Lowlands	1	2	Ross Point	View across Lough Melvin into LCA	192993	350065
Garison Lowlands	1	3	Sheenun	View across Lough Melvin into LCA	190640	350975
Lower Lough Erne	2	1	Lough Navar Forest VP/ Magho Cliffs	Views north across Lower Lough Erne, across to LCA3.	206222	357669
Lower Lough Erne	2	2	Boa Island	Views south across Lower Lough Erne	211639	363331
Lower Lough Erne	2	3	Kesh Marina	Views west across Lower Lough Erne	216345	364172
Lower Lough Erne	2	4	Rossharbour Bay	Views south across Lough Erne, towards Lough Navar Forest	203724	361977
Lough Navar and Ballintempo Uplands	4	1	Lough Navar Forest	Viewpoint within Forest/ Geopark	206905	356387
Lough Navar and Ballintempo Uplands	4	2	Lough Formal	View across forest/ geopark from high point	204423	347464
Lough Navar and Ballintempo Uplands	4	3	Correl Glen	View within LCA from recognised VP	207541	354702
The Lough Macnean Valley	5	1	E of Belcoo	View across Lough Macnean Lower	209474	338597
The Lough Macnean Valley	5	2	NCN91 W of Belcoo	Views north from within landscape area along recreational route	203736	342611
The Lough Macnean Valley	5	3	NCN91 W of Belcoo	View SE across Belcoo	206747	340385
The Lough Macnean Valley	5	4	Belcoo	View from the settlement east across Lower Lough Macnean	208559	338460
The Knockmore Scarpland	6	1	Belmore Mountain	View from high point to south of the LCA, within geopark, final location depending on access	213168	342177
The Knockmore Scarpland	6	2	Aghameelan Viewpoint	VP south east into the LCA	207969	355629
The Sillees Valley	7	1	Monea Castle	Views south west from the castle across the LCA.	216450	349346
Cuilcagh and Marlbank	9	1	Goralughany Viewpoint	General views across the LCA from VP OSNI VP	216785	330008
Cuilcagh and Marlbank	9	2	Marlbank Picnic Site	View north across Lough Macnean.	209267	336285
Cuilcagh and Marlbank	9	3	Cuilcagh Mountain Park Car Park	View from lower slopes of Cuilcagh summit path	212035	333480
Slieve Russel, Derrylin and Kinawley	10	1	Edenmore VP Car Park	Views north across LCA from recognised VP.	224813	325683
Upper Lough Erne	11	1	Knockinny Hill	View from high point within LCA across Upper Lough Erne.	227303	330190
Upper Lough Erne	11	2	Lady Craigavon Bridge	General views from within Upper Lough Erne, near car park, picnic spot.	233088	327963
Upper Lough Erne	11	3	Castle Balfour, Lisnaskea	View from settlement, historic site, across Upper Lough Erne	235994	333757
Enniskillen	13	1	Devenish Island Ferry Car Park	View close to Devenish Island across Lower Lough Erne	222579	348001
Enniskillen	13	2	Blaney Viewpoint	View across Lower Lough Erne from a recognised viewpoint.	217386	352005
Enniskillen	13	3	Nr Castle Archdale Country Park	Views to Castle Archdale CP, White Island and across Lower Lough Erne	217506	360796
Lough Braden	14	1	Pigeon Top Viewpoint	Views north/ east to neighbouring Omagh Farmland (LCA 22)	237088	371099

LCA	LCA	VP	Name	Reason for Inclusion	VP Coordinates (Irish National Grid)	
					Easting	Northing
Lough Braden	14	2	Giant's Ring	VP from site of tourism/ heritage interest within LCA	220150	370811
Irvinestown Farmland	15	1	Necane Castle	Possible general views from a designated Garden	223404	357081
Brougher Mountain	16	1	Nr Brougher Mountain	Views north from high point across the LCA	236893	353721
Brougher Mountain	16	2	Topped Mountain	Recognised hill top viewpoint, views across southern parts of LCA	231081	345744
Brougher Mountain	16	3	Gargrim Rd	View west across the Omagh Farmland	246634	360778
Clogher Valley Lowlands	17	1	S of Fivemiletown	Point on minor road views north across the LCA.	245285	345605
Slieve Beagh	18	1	Cairnmore Viewpoint (Doocarn)	Recognised viewpoint, views east across LCA and to LCA12	248072	336233
Slieve Beagh	18	2	S of Fivemiletown	Point on minor road views south across the LCA.	245677	345093
Fairy Water Valley	21	1	N of Drumquin	General views from point on 'South Sperrins' Scenic Route	232841	374976
Fairy Water Valley	21	2	Sloughan Glen	Views close to scenic location, views east across the LCA	227820	374335
South Sperrin	24	1	Nr Barnes Gap	Views into LCA from local cycle route/ road	254879	388837
Beaghmore Moors and Marsh	25	1	Formil	General view across LCA from elevated part of road.	262318	382130
Bessy Bell and Gortin	26	1	Gortin Glen Forest Park	Recognised VP, within AONB	248977	380613
Bessy Bell and Gortin	26	2	New Lough VP	Recognised VP, within AONB, towards LCA24	250710	384085
Bessy Bell and Gortin	26	3	Bessy Bell ASQ	View towards the Omagh Farmland/ lowlands from high point on road.	238449	380061
Bessy Bell and Gortin	26	4	N of Omagh	Views south across Omagh Farmland and Camowen Valley	247732	376169
Carrickmore Hills	43	1	Coolaharan Road	General view from road network in elevated part	258531	377551
Slievemore	44	1	Slievedivena	General view from elevated part of LCA	258995	362393
Slievemore	44	2	Attymanus	General view from elevated part of LCA	263908	369315